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A JOURNAL
 DEVOTED
 TO BEES
 AND HONEY
 AND HOME
 INTERESTS.

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No. 21.

STRAY STRAWS FROM DR. C. C. MILLER.

A GLORIOUS ENDING was that of our grand old friend father Langstroth.

FREEMAN POTATOES have done well here, and what beauties they are! Rural New-Yorker No. 2 is also fine.

IN THE DISCUSSION as to five-banders, the fact is not as generally recognized as it should be that there are five-banders and five-banders. It seems that some of them are Italians, others not. Why should they be alike?

THE FALL YIELD in this locality doesn't usually amount to much. I think it was better this fall than ever before. Now, if the bees that have got into the way of storing will only keep in the same mind next spring!

STRAWBERRY-PLANTS kept in hills is a superannuated plan in the West, voted out years ago. But latterly it seems to be coming in again, and I saw at Freeport a fine bed kept in hills. Mr. Cotta claimed it was little more work than the matted-row system.

MY FIRST MEETING with father Langstroth was at Cincinnati in the winter of 1872-3. He very kindly called to see me at my office where I was helping to get up the first of the great May Musical Festivals under Theodore Thomas.

YOU CAN GUESS pretty closely at the amount of stores in a hive by looking at the tops of the combs; but you can come closer to it by weighing each hive, and you can do it in less time. Make abundant allowance in every hive for weight of pollen and extra weight of old combs.

LET US KNOW MORE about rape. Do others find it as profitable for forage as Jas. Pratt? In Germany bees are moved to the rape-fields. Is the Dwarf Essex also good for bees? [I should like to have our readers who may have had experience along these lines speak out.—ED.]

LANGSTROTH AND QUINBY are both gone; but the Germans still have their Langstroth, the revered Dzierzon. Only three of the 40 great wander-conventions has he missed since their commencement in 1850.

IN THAT DESCRIPTION of alfalfa on p. 778, doesn't friend Taylor mean it looks like *sweet* instead of *red* clover? When not in blossom, alfalfa is very hard to tell from sweet clover. Just look for sweet clover with purple blossoms or snail-like seed-pods and you'll have alfalfa. Can't miss it.

A MAN IS CRUEL to his team who allows a weight of 200 pounds of frozen mud to remain on the wheels of his wagon. He's cruel to himself if he allows himself to carry around 25 or 50 pounds of useless fat. Since reducing my weight 20 pounds, it's a good deal easier to carry my carcass around.

EVEN THOUGH not interested in shipping queens long distances, one can not help admiring the adapting of means to ends in that cage pictured on p. 774. Few lines of business set to thinking about and planning new implements and methods more than bee-keeping, and few lines contain brighter thinkers and planners.

"ALL IMPURITIES are left behind when water is turned into steam," says S. S. Butler, p. 770. I don't know about that. When a pot of meat is cooking, the water is turned into steam, but that steam has a pretty strong odor, and carries with it something more than pure water. If boiling kills all poisonous germs, can evaporation do more?

MORE AND MORE I come to the view that I don't want to see sweet clover grow six feet high. I think more honey in the long run will be had from it if it is kept cut down or eaten down so that it never gets more than two or three feet high. [I think you are right—at least, the clover that stock browse down seems to be more thickly covered with bees.—ED.]

STOP MY PAPER! It isn't a safe thing to be lying around where children can read it. When J. P. Israel talked about cross-eyed bees that

was bad enough; but when Rambler talks about pulling the bottom out of a well, that's "lying around" too much. Why, you can't pull the bottom out of a well, and bees never get cross-eyed. Stop my paper!

MY PREJUDICE is decidedly in favor of five-banders on account of their beauty, and I wish with all my heart that we could rely upon profit in exact proportion to beauty; but facts can not be ignored, and I suppose we must give up that many of the five-banders are inferior. The charge as to poor wintering seems pretty fully established.

SOMEHOW that straw at the head of the second column, Oct. 15, seems to have had its head knocked off. But the heads of straws have no grain in them anyway. [We plead not guilty here. I don't agree. The "straws" very often—yes, generally—have bigger heads with kernels in them than the Heads of Grain. In reality this department should be christened Heads of Grain, and the other now bearing that cognomen, "Bundles of Straw," but you know I don't believe in changing names.—ED.]

LET UP, Mr. Editor, on calling my language slang. If you will look in the dictionary you will find that "let up" is not slang but colloquial. I am surprised to find that "catch on" is also colloquial. But I like apprehend or "understand" better. I'm rather in favor of using slang when it expresses what can not be expressed by straight English. [So am I; but it strikes me that much that has come to be regarded as colloquial is really slang. As to "catch on," it expresses more to me than "understand." The latter is too tame.—ED.]

MY CONCLUSIONS don't entirely agree with those of J. P. Israel, p. 771. I think foundation in sections will keep a long time without losing any of its "internal arrangements," if kept from the bees; but if left too long in the hive when no honey is gathered, especially late in the season, its "external arrangements" are so disarranged by the bees that they'll not use it. I have thousands of sections filled with foundation. [How is this, friends? Let us have testimony from a good many others. The proper answer to this may mean a good deal to some.—ED.]

"HE'LL REDUCE his weight till he reduces himself into the grave," is the remark one of my auditors made when I read the first sentence on p. 782. [No, he won't. He is gaining now, and your humble servant on the same treatment is now gaining three pounds a week, and I shall soon be in full flesh again. My normal weight in health is 140 lbs. After being on the diet for a few weeks it got down to 117. "Alarming," you say; but Dr. Lewis told me I must expect to lose weight; that I must, as it were, throw away useless waste material and build anew. Am I doing it yet? Yes, sir.—ED.]



NUMBER OF BEES TO THE POUND.

DO BEES PREFER NEW OR OLD COMBS?

By Philip J. Baldensperger.

Mr. Root:—The question seems to agitate bee-keepers to some extent as to how many bees there are to the pound; how many pounds to the swarm; how many eggs a queen lays a day; bees carrying eggs; and old or new foundation, which preferred? We all know by experience, and by having read in divers periodicals and books, that the number of bees per pound differs according to race, and more especially their condition when weighed, whether full or empty, or, I may say, very empty, and perhaps an infinity of conditions—very full, half full, and so on. Mr. A. I. Root, if I remember well, some years ago said in GLEANINGS that 25,000 bees in a colony was what he deemed about right. In your footnote, p. 585, Aug. 1, 1895, you give two conditions—4500 to 5000 per pound before swarming, and 3000 to 3500 when filled with honey. This last number is about what Simmins and Cheshire find in a pound, while your first number, 5000, is given by the Abbé Voirnot—perhaps one of the most eminent French bee-keepers. Cheshire, Vol. II., p. 263, put 10,200 bees to the pound; and he found that 3000 dark bees filled with honey make a pound, and 4500 to 5000 yellow bees per pound, filled. Of course, colonies may vary greatly, from 4 to 10 lbs., while I think an average good colony, swarmed out in fair condition in spring, when flowers are abundant, would weigh 7 or 8 lbs. Here, again, opinions differ very widely, I may say; for Mr. Hyde, on p. 585, says 8 lbs. of 3000 bees each equals 24,000 bees; and you indorse his opinion, which, I am glad to say, I suppose is nearer the truth than any other figures.

Authorities on bees differ greatly as to the number of bees in a hive. Mr. J. Hewitt, in the *British Bee Journal* for July 1, 1884, says 76,000 worker-bees, and believes that something like 200,000 bees in a hive at a time may be found. Abbé Martin says 100,000 workers, which figures he arrives at by multiplying numbers which have almost become, in bee-keepers' minds, an established error.

You can hardly see a book or article but you read of 3000 eggs a day. Suppose, now, these 3000 eggs are to be multiplied by 21; that makes 63,000, and this goes on. Another one says it is known that one bee brings in $\frac{1}{10}$ of a gram, and remains 10 minutes on a trip, and works 8 hours a day. This equals so many pounds; hence so many bees. But there are a great many *buts* which must always be remembered; for neither does a queen lay 3000 eggs every day, nor is the

laying at all regular; nor do bees fly out at regular intervals; and still much less do they come in so, nor with uniform loads; nor do they live uniformly six or eight weeks during the working-time, nor 6 to 8 months during winter, or, at least, during the time of repose. I will give a few notes later on, collated during many years of close observation as to numbers. Let me here say, that, as nearly as I could make out, 35,000 to 40,000 bees is the average of a *colony* — not a *swarm* — note that. A swarm can never be as strong as a colony, as the swarm issuing is part of the *average* colony; thus, a colony ready to swarm may push the queen to laying up to, say, 50,000 workers present; a swarm issues, and 25,000 bees are left in each camp, including, of course, some old bees.

NEW OR OLD COMB.

But now comes another question: Suppose, to start with, we put the 24,000 bees into a hive, according to the condition of the comb. Old comb is, in my opinion, undoubtedly best to begin with; and here Dr. Miller and his correspondents, on page 634, Aug. 15th, agree on one point. Every question has many sides; but especially so with bees; as almost always, whenever a question is set forth, it must be put under certain conditions; thus, in *Stray Straws*, June 15th, "Please," says, Dr. M., "keep watch and tell us whether a queen prefers to lay in new or old combs; also which the bees prefer to store in." Immediately we would put the question to ourselves as to whether the queen is surrounded by blacks or Eastern or Ligurian bees, and at what time of year. My experience leads me to say that a swarm newly hived, or a colony in fair condition, with old and young bees hatching, working on old comb, will draw out comb foundation introduced into the brood-nest, over night, and one will be very sure to find the flat comb foundation, introduced in the evening, containing eggs in the center about 7 or 8 o'clock next morning; also some drops of honey, and even pollen, near the top, provided it is during a good honey-flow, and in spring. Of course, it pleases the eye, when looking in next morning, to find the yellow foundation turned into an almost snow-white comb, and inhabited by bees, as though it had always been there; and beginners in general, and even bee-keepers of many years' experience, not carefully examining the question, are led to believe that bees prefer the new combs, and simply because it pleased their sight and feeling as to durability.

In France the opinion has been held by many, that, between 4 and 6 years, the combs are too old to be of any use to the bees, as the cells are by that time too small, on account of the successive generations of bees hatching in them, and because they "darken the honey." This last opinion is due to the dark sealings. Every one knows that bees will seal their honey very near the color of the comb; and here the races

give different color to the sealings of honey. I have frames and combs that have been in use ever since I began bee-keeping; and when we first started we bought jar hives which had been used many years, so I know that twenty-year-old comb is very good, and I would not call it old; nor am I now discarding any.

A correspondent of mine bitterly laments my having sent him dark comb with the colonies he ordered of me, although I had to explain to him (a man who boasts of twenty years' experience in bee-keeping) that old comb is better than new to start with a nucleus; and, secondly, that on no condition will I send newly built comb, loaded with bees and brood and honey, through the mails, and that for the sake of both of us; for although the seller always guarantees safe arrival of his queens, every one knows how disagreeable it is to receive a queen or colony in bad condition. He'll have to wait a few days more, perhaps a few weeks; but he wanted to start at once, right into the honey-flow then abounding in his or her locality. The bees are obliged to secrete wax, many writers claim; but, on the other hand, they ought to have said, "In spring, bees will secrete wax with great facility, and to some extent must do so." This would be correct. This is chiefly from such men as like to combat mobilists; or, if they get to be mobilists, comb-foundation manufacturers; but bees can build comb foundation, and secrete wax, to a small extent, almost every spring of the year, and not more. Suppose, for an instant, those writers to be correct in their views; what do they do with the stock of bees in a tree, sending out swarms year after year, and good comb-builders in the bargain, without ever building any comb in the old locality? They breed in the perhaps half-century-old comb, store honey, and, in years of scarcity, remain there. The wax-secreting organs are not at all changed in the succeeding generations, because, for at least 18 months, no swarm issued; and, consequently, no wax was secreted; but let us for an instant follow a swarm, issued April 1, hived entirely on foundation, as there was no old comb to spare. In about 15 days, during a fair honey-flow, the bees have drawn out 10 to 15 combs; and let us suppose that honey is coming in. We add a story, and 10 or 12 combs are built. The wax-secreting organs have been exercising their functions to their fullest extent. At the end of May, of course, not a single bee of wax-secreting memory is living, and the generation now filling the hive is from 1 to 40 days old. Not a single bee has had any occasion to secrete wax, because the hive is complete. The first-hatched bees are rapidly dying off. About the end of June, 60,000 or 70,000 bees will have passed away, having carried in honey and pollen, and water-nursed the bees, but never secreted any wax. The extractor is worked as often as necessary, giving the

bees a chance to make continual visits, and many more chances to secrete wax; to repair the wear and tear caused by uncapping and many other operations.

As a rule, bees will not build foundation in summer during a very light honey-flow, provided a good number of old combs are given to the hive. I have tried it time and again, putting in a sheet of foundation to every three or four old combs, to find, a fortnight later, the old combs filled with honey—often, also, with brood, and the foundation left untouched in the middle, even though on some occasions it would be introduced right into the brood-nest, and left untouched, or a few cells be drawn out in the center, "*par acquit de conscience*," eggs laid, and sealed, and that was all. Honey is generally stored right above the patches of brood. The bigger the combs, the more concentrated you may find the brood and honey; while with smaller combs, honey is discarded in cases of a fast-laying prolific queen; but, again, in spring, as the season advances, honey is brought nearer; the patches of brood are rounded to take the winter-clustering form, and honey is put around, and old comb is utilized in preference, as being more firm. Perhaps, also, the dark color is preferred by bees. They do not want any light inside the hive, and so, perhaps, discard the light-colored comb at the approach of winter. As a rule, of course, there may be exceptions.

Nice, France.

[You will find an article bearing on this same subject, on page 699, Sept. 15th issue. Thanks for the additional light you have given us.—Ed.]

RAMBLE 142.

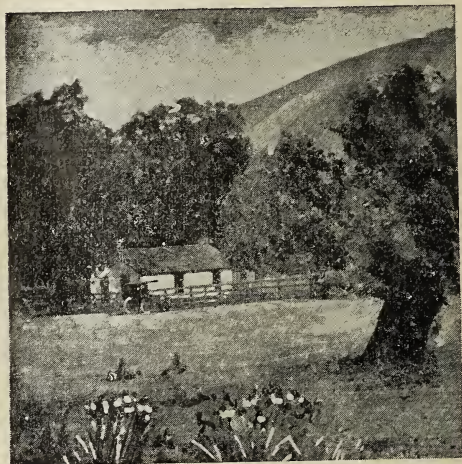
CROSSING THE TEHACHAPAI MOUNTAINS.

By Rambler.

In the Tejon Pass we crossed a portion of the great Beal Ranch, containing 350,000 acres. Gen. Beal, of the U. S. Army, and at one time Surveyor-General of the State, accrued to himself the above territory. The method of accruing it, it is said, was intensely crooked; but as the general has exchanged the title to the 350,000 acres for a little parcel of ground 2x6 feet, and gone to the country where the crooked shall be made straight, I do not feel like accusing him of misdeeds now. Upon the ranch are 15,000 head of cattle, hundreds of horses, and hogs; in the mountainous portions grizzly and black bears, deer, antelopes, and much smaller game. It was a game country, and Bro. Wilder would have explored its ragged recesses at any other season.

Thé Tejon Pass, for the greater part of the way, is a rough and ragged canyon. Reina had regained the control of her foot again. She seemed to reserve her lameness for Sunday

travel only; and before night we arrived at the adobe home of our poetical Irishman, and we camped in the park of noble oaks that surround his house. In the evening we gathered around a roaring fire that sent the sparks up the chimney from a capacious fireplace; and how true it is with us lonely bachelors that "A fellow feeling makes one wondrous kind"! Our friend the poet was a good conversationalist, and the pleasures of the evening tripped lightly along until there came an ominous knock at the door. "Come in!" cheerily said our host. The door opened, and a short, thick-set, powerfully built, black-faced, black-eyed, black-bearded Mexican appeared. "Come in. José" (Ho-say). They both laughed, and clasped hands like the dearest of friends. José unbuttoned his coat, and from an inner pocket he pulled a long black bottle and placed it on the table. The men again laughed, and clasped hands.



THE POET'S HOME IN TEJON PASS.

Our host, who had been somewhat sedate in conversation, was now visibly enlivened. The bottle rested not long upon the table; the cork was drawn and glasses filled. As guests we were offered a generous allowance; but Bro. Wilder and I could not afford even here, in the cabin of our convivial poet, to break over our rules of temperance, so we politely declined. José and our host, however, attacked the bottle and clinked their glasses together for health. The clinks became quite frequent. José quite musical, and our host poetical. We observed that the performance would last until a late hour, and we bade the performers good night and sought our tent and our slumbers.

We were aroused some hours later by voices near our tent singing a farewell song—softly, then swelling in harmony, José's deep bass voice and the poet's tenor. For a full half-

hour this tender farewell trembled wierdly upon the night air. The agony of farewell was enough to sever two loving souls a thousand miles apart and for years; but José lived only three miles down the canyon, and expected to see his boon companion the next morning. The agony of parting ended at last, and José rattled off down the canyon with his horse and cart, and we were left again in quietness. In the morning our poet host was not so lively, and perhaps he was a little shame-faced before us. We learned from him that he was a voluntary exile from his wife and children, and had not seen them for three years, and they lived in a moderate city less than a hundred miles from his lonely retreat. His abilities were such that he had held county trusts, and his poetical gems had assumed book form which had met with favorable sales. His family were bright and well educated, and moved in good society; "and," said he in a tone of sadness, "you saw last night why I live this lonely life." His convivial habits when at home were continually bringing disgrace upon his family. I relate the incident as the best kind of a temperance lecture; and we are again admonished by it to "taste not, touch not, handle not." Our poet could handle bees, and had tried bee-keeping; but his habits and the business did not agree. The bees, it seems, had a certain love for him; for in the morning he showed us some of the oak-trees that were around his cabin, the hollows of which were occupied by bees. Seven trees bore burdens of sweetness, and he said there were several more in the canyon, but no near bee-keepers.

Our farewell was not so tedious or musical as the one of the previous evening. After our brief parting compliments we continued up the canyon and were soon upon the summit of the Tehachapai range of mountains, about 4000 feet above sea-level.

Our route was now down grade, and our ponies made good time into Antelope Valley, so named from the immense herds of antelope that only a few years ago roamed the plains. Now the bands are few and scattering.

At Neenach we found one store, a school-house, and one residence. They had something of a trade from the surrounding country. We had an excellent opportunity to observe, for we sat around the stove all day. A rain had taken possession of the country, and we were thus delayed. We diligently inquired of the ranchers and hunters in relation to the honey resources of the valley, and found varying opinions in relation thereto. The valley is very broad, and the bee-men seemed to be located in the distant foot-hills, where some of our informants said large yields of honey were produced.

The next morning, though the skies were threatening, we pushed on again toward Elisa-

beth Lake. We passed through a new experience on the way. The shepherds were tending their flocks upon the hillsides, and they were in trouble. As we traveled up a long grade we saw here and there the carcass of a dead sheep; and as we neared the main herd the dead sheep became more plentiful. The cold storm saturated their woolly coat, and the weaker ones soon became chilled, and dropped by the way. As soon as a sheep would drop, its throat was cut and its hide stripped off and packed upon a burro. Several burros were thus laden. The sheep-men said they had a flock of 4000 sheep, and would think themselves lucky if they could get out of the hills with 3000. So sheep-men have their losses as well as the bee-men.

When we came through the narrow pass above Elisabeth Lake we were met by a fierce wind and rain. It seemed as though the elements were opposed to our further progress. We were soon drenched to the skin. The little lake was lashed by the fury of the storm, and we were greatly pleased to find shelter from the storm at the stage station. We here found again a generous Missourian, who had lived upon the shores of the lake for many years. He had joined himself to the country in a truly heroic spirit, and had not only grown up with it but had added largely to its population by marrying a Spanish woman; and the result was a houseful of mongrels. The rain had driven them all into the house, with a few of the neighbors thrown in, and it was a motley crowd that gathered around the ample fireplace and its generous heat. Bro. Wilder and I were so thoroughly wet we were given a warm corner where we proceeded to dry out our garments. It was of interest to note that two full-grown señoritas flashed glances from their dark eyes toward my partner. I was pleased to observe that he was not especially taken with the style of half-breed beauty.

After getting used to the situation I noticed two young American ladies in a far corner. They were very quiet, and did not seem to mingle much with the rest of the occupants of the room. I noticed some of those tell-tale lines running from the corners of the eyes, and others running down somewhat slanting from the corners of the mouth. The hair was trained down to a smooth habit; the dresses were plain striped calico, about eight-cent goods, and possessed a little narrow white collar, starched. In the lap was a checkered gingham apron with white pockets on the right and left, duly puckered. The tendency of the arms was toward an akimbo habit, and there was a severe cast to the countenance, a frigid dignity to the general figure. I could almost see hickory rods in their hands, and with some solicitude I edged my chair up to the side of our host, and, pointing my thumb over toward the

corner, I whispered in his ear, "Schoolma'ams?" "Yes, schoolmoms," said he, in a stage whisper, "both on 'em; sistern; one teaches our school; the other, the one over in Grimes Canyon. I tell yer, that oldest one, the one that teaches our school, has the most sassafras about her, though."

Partner caught the word "schoolmom," and it seemed to electrify him at once. I was again in a state of consternation; and, while he was frantically trying to dry all sides of his body at once, I felt greatly relieved to see the schoolma'ams retire to an inner room; the girl with a sassafras reputation brought up the rear in good order. A sly word to our host, and he kept them corraled in that obscure portion of the house until we departed early the next morning.

Our Missourian had at one time been a bee-keeper to the extent of a hundred colonies. He said that the locality was too cold and windy, and he could get but little honey, and so gave up business. I reflected upon the matter, and came to the conclusion that a man who owned several hundred head of cattle, and could not bring down from the hills one cow to provide milk for his numerous youngsters, would not succeed with bees in the best of pasturage. He lacked what he applied to the schoolma'am—sassafras.

THE T SUPER VS. THE SECTION-HOLDER DEVICE.

AN EXCHANGE OF LAST SHOTS.

By Dr. C. C. Miller.

I may as well confess, Mr. Editor, that you have made on page 517 a better plea for the section-holder than I supposed was possible; and I am much obliged to you for putting your plea in definite, orderly shape. I'll try to accept the truth that is given, and show, if I can, wherein there may be error.

Your first argument is one that should have weight; and if you find a large number using section-holders or modifications of them because, after trying both, they prefer them to T supers, that should make a heavy score in favor of section-holders. At the same time, it must be remembered that one modification of the section-holder (the wide frame) is a good deal older than the T super, and many are using it who have probably never tried the latter. Indeed, I suppose there are many who have never tried either of them, and are, perhaps, wondering why we are quarreling as to which is the better of two articles, neither of which they would have for their own use.

You make six distinct claims as to the superiority of the section-holder. I'll take them in order:

In No. 1 you say, "In some localities it is desirable to shift the outsiderow of sections to the

center, and *vice versa*." I think that isn't true. Now, mind you, I'm not saying you're a liar, only I don't believe it is true, just as I don't believe some of the other things you say, although you *may* be right and I wrong. And this brings up a proper subject upon which to have light thrown. We ought to know whether it is or is not desirable to have sections change places. It is possible that I may be convinced—and, what is more to the point, that others may be convinced—that, in certain places, it's a good thing to jump sections. If you've got any light, turn it on. At present, No. 1, I think, stands "not proven." If that point be proven, I'll go farther than you, and say that the section-holder is well fitted for such interchanging, and the T super isn't fitted for it at all.

No. 2 stands. I'd rather have fewer loose pieces than the T super has.

No. 3 is a case of special pleading that won't stand; for we're not talking about the abuse but the proper use of things; and you admit that, with proper use, sections are square in T supers. I can prove by your own words that the slats on which sections rest in section-holders will sag, and I think you know that T tins do not sag. That makes it so that proper use will result in none but square sections in the T super, and at least some sections a little out of square in the section-holder.

No. 4 I'm willing to admit, in plain Roman letters; but when you call the advantage *important*, in italics, that's carrying it too far.

No. 5 is another case of special pleading mixed with what I believe to be erroneous statement. I very much doubt that the great majority of bee-keepers put sections on the market unscrapped. Perhaps a better way to put it is to say that I think the majority of sections put on the market are scrapped. Even if what you say were true, it's not the right thing to tell a beginner he should use an inferior article because it best fits careless and slovenly beekeepers; for no less an authority than the ABC says, "In order to make sections present a clean marketable appearance, all propolis should be scrapped off."

But this difference you are speaking of, be it more or less, is only on the edges of the section; and the important part to scrape and have clean is the top, and I suppose you would hardly say there is any difference as to tops in the two supers.

No. 6 contains a view that you may be excused for holding, on account of your relying on antiquated authorities. Allow me to lay my modesty aside long enough to say that the man who wrote "A Year among the Bees" didn't know as much about producing comb honey as I do; and he didn't know the best way to engineer a T super. None of that complicated machinery of which you speak is used except a single board as a follower to push out the sec-

tions. You say, "The section-holder arrangement may be emptied by simply removing a wedge or tightening-strip, and then all are practically loose." That's a fine example of the way to teach an error by stating a truth. The words you say are strictly true; but the inference likely to be drawn—namely, that something quite different rules with the T super—is the reverse of true; for loosening the very same wedge in the T super leaves the sections just as loose, and the manner of emptying is just as "self-evident," in one case as in the other. So No. 6 falls to the ground with a "sickening thud." But I forgive your attempt to deceive in No. 6. It doesn't come so much from a bad heart as from blindly following the teachings of a man so far behind the times as the writer of "A Year among the Bees."

As to the matter of looks of the T super with one or four cleats, you are not paying a very high compliment to the good sense of bee-keepers when you say that 99 in 100 would reject the thing because of its looks. I have a better opinion of them. But when you say, "The outside cleats on both ends are intended in lieu of hand-holes," I give in. I think I like the four cleats.

You repeat one of your former arguments, and thus compel me to repeat my reply. No, I am not as much accustomed to the section-holder as to the T super; but it doesn't necessarily follow from that that I can't see the advantages in something new; and the proof of that lies in the fact that, when I knew as much of wide frames as I now do of T supers, and as little of T supers as I now do of section-holders, I nevertheless changed from the old to the new, and am I not just as likely to see advantages in a new thing again, if those advantages really exist?

And speaking of wide frames reminds me that I ought to remind you that you have not told us what advantage the section-holder has over the old wide frame. If it's no better than the wide frame, and the T super is better, does it not logically follow that the T super is better than the section-holder?

Now I think I'll leave you to sum up the differences between us and agree not to talk back, asking you not to forget that any width of section can be used in the T super, and only one width in the section-holder. I don't know for certain what width is best. Do you? After using many thousands $1\frac{1}{8}$ wide I changed to $1\frac{1}{4}$, and I should very much dislike, by adopting a section-holder, to contract to use nothing narrower than $1\frac{1}{4}$ for the rest of my life.

Marengo, Ill.

[Then you don't admit proposition No. 1. Suppose you turn to p. 741, Doolittle's article, and see how he manipulates rows of sections. Remember that he and a host of others use single-tier wide frames; and one of the main reasons, if I am correct, why they use them is the

facility afforded in transposing rows of sections over the top of the brood-nest. The only difference between these and section-holders is in the use of a top-bar. Knowing in the first place that a large number were following Doolittle in the use of what is now known as the Doolittle surplus arrangement, we adopted the section-holder device, which is, to all intents and purposes, the same thing. P. L. Viallon, once the leading bee-man of the South, was, and for aught I know is now, an earnest advocate of the Doolittle arrangement. With either this or the section-holder proper, and intelligent manipulation, we can avoid hundreds of pounds of unfinished sections; and this may mean profit as against actual loss.

Before I leave proposition No. 1 I must say that our position as supply-dealers and publishers puts us where we can see what bee-keepers are using and calling for. The T super has had its day among the great majority of bee-keepers, no matter how well a few, like yourself and some others, may like it. Why? Among other reasons, because it favors the production of unfinished sections—something that can be more easily avoided with single-tier wide frames or section-holders.

If No. 2 stands we will pass on to No. 3. I contend this is not a case of special pleading. You say we are not talking about the abuse but the proper use of a thing. Isn't it rather this way? In the language of President Cleveland, we are "confronted by a condition, not a theory." The "theory" is, that sections in T supers can be held square by the use of a lot of extra fixings. The "condition" is, that the majority of bee-keepers (not won't but don't) fuss with these strips of wood that require so much care in adjusting. Bee-keepers do not, as a rule, stop to take the "diamond" shape out of the sections in T supers, as you would find if you bought honey by the ton and carload from all over the country as we do. Neither do they scrape those same sections.

This brings us to point No. 5; and here again we are confronted with a "condition;" and that condition is the most satisfactorily met by the section-holder.

Suppose we say that our present spelling is an abuse in the use of superfluous letters. We can not ignore that abuse as you would have us do in the case of the non-scraping propensity of the majority of bee-keepers. We must take it as it is, as we do every day in spelling. If the section-holder, when keyed up with slotted wood separators, gives cleaner sections without scraping, and truer in shape, then it is the better arrangement. As to your other points, I would refer the reader to my former statements to which yours are in reply.—Ed.]

THE PURITY OF CALIFORNIA HONEY.

THAT HALF THE HONEY PRODUCED BY CALIFORNIA HAS BEEN ADULTERATED WITH GLUCOSE, AND SENT EAST, NOT TRUE.

By Geo. W. Brodbeck.

Friend Root:—I am very much disposed to take exception to the publication of such a sweeping statement as the one made by C. W. Dayton, in GLEANINGS, page 729, that "half the honey produced by California has been adulterated with glucose, and sent east by a few, if not very few, wholesale firms." A statement of this kind, and of which you your-

self say, "I can not believe is true," ought to be consigned to the waste-basket unless accompanied by at least some substantiating evidence in support of it; and yet this does not contain a single shadow of evidence in support of it. In spite of your assertion, "I don't believe it," the very fact of its publication in one of our leading bee-journals will result in a reproduction in other papers, minus your footnote.

Our situation in connection with this case is a rather peculiar one; for, to sum up, we of necessity become the defendants, and the burden of proof is demanded of us, which, as a rule, devolves on the plaintiff; but necessity compels us to avoid any exception to this unusual mode of procedure, and we trust the truth and nothing but the truth will be forthcoming.

Our home market is so limited, and our product some seasons so great in quantity, that our only source of disposal is the honey markets of the East; consequently, whatever is said or done reflecting on our product destroys confidence, thus limiting the demand and lessening the price; and if this is true, any reflection or insinuations as to the purity of California honey, be it true or not true, is a question of vital import to every California bee-keeper.

'Tis true, I have heard something of adulterations in California, and I have endeavored, as far as possible, to sift out and digest these circulating rumors as far as it has been within my power to do so; and, with one exception, I have yet to glean any evidence in support of adulteration in this, the largest honey market in California. You, in all probability, know something in regard to freight rates to this coast, and in consequence can form some idea of probable profit in shipping glucose out here to adulterate honey with (glucose is not manufactured out here), and then reship to the eastern market, and this when honey has been selling as low as $3\frac{1}{4}$ to $3\frac{1}{2}$ cents in any quantity; and as probable gain would be the only inducement to do this, I fail to figure any possible profit at present prices.

Since reading Mr. Dayton's statement I have consumed the greater portion of two days in this city in search of glucosed honey, even going so far as to trespass on the domain of the "exception" referred to, and thus far have failed to find a single ounce of glucosed honey.

From evidence gleaned, I candidly believe that, in years past, when our product commanded a higher price, one establishment in this city was guilty of adulteration; and from this, more than all else, have sprung the rumors of the mythical millions of adulterated honey. Furthermore, allow me to inform you that the last session of our State Assembly passed two laws bearing on the subject of adulteration—one bearing directly on honey, and the other

indirectly, in connection with the "pure food" law, in both cases making it a misdemeanor; and I can assure you that, whenever any evidence of honey adulteration is produced, the Los Angeles County Bee-keepers' Association will see that guilty parties will get their just deserts.

Los Angeles, Cal., Oct. 15.

[The first thought that came to me on reading the item with regard to the extent which California honey was said to be adulterated, in friend Dayton's article, page 729, was that it should be struck out. And then I remembered that I had seen various allusions to the same effect in agricultural papers; and I had heard it whispered around at conventions and elsewhere that California honey was so largely adulterated that it seemed to me it would be better to give the thing some intelligent consideration; that if it should prove to be only a man of straw we could easily knock it over.

I am very glad indeed to get such an explicit, and, as I regard it, satisfactory, denial, of the statement. I am glad, also, to know that there are two good laws in California, bearing on the subject of making the adulteration of honey a misdemeanor. Surely, with the help of the Los Angeles Co. Bee-keepers' Association, and in connection with the Union, we should be able to sift these things down to a pretty fine point. But here is another article from the Rambler:]

CALIFORNIA HONEY NOT ADULTERATED AND SENT EAST.

HOW THE PRODUCT IS MARKETING.

By Rambler.

In Mr. Dayton's article, on page 728, there are several statements with which California bee-keepers can not agree, and one in particular that calls for a word of protest. He uses these words: "It is estimated that one-half the honey produced in California has been adulterated with glucose and *sent east* by a few if not a *very few* wholesale firms."

I have italicized the words open to criticism. It is a bare possibility that half of our honey is adulterated before it reaches the consumer; but if it is, there is insufficient data to support the assertion, and it resolves itself into a mere guess or conjecture. But when Mr. Dayton uses the term "*sent east*," implying that the honey is adulterated to such an extent here in California, I do emphatically protest against the insinuation, and not only say with the editor in the footnote to the article, "I do not believe it," but, while I do not charge the writer with a willful desire to deceive, I can prove that it was too lightly considered.

The honey in all this region is sent east in various ways. A number of producers market their own honey, either through commission houses in the East or by direct sales. There is no suspicion of adulteration, and is none in these shipments. Next a great amount of honey is purchased by local dealers. Every local-

ty has one or more local buyers. These buyers pay cash to the producer, and the honey is loaded upon the car at the nearest station, and shipped directly east. The scores of carloads of honey that will be shipped from this (San Bernardino) and Riverside Counties, will go directly east, virtually from the producer, and will not even pass through our large trade centers. All of the honey in Ventura and northern Los Angeles Counties is served the same.

Mr. Dayton's remark, "very few," narrows the charge down to certain wholesale firms in Los Angeles. There have been various charges well sustained against certain of these firms and their practice of adulteration; but the reader will readily see that the idea that these few firms adulterate half the honey in California is not only fallacious but ridiculous; and the writer of such a statement must have been laboring under a violent nightmare over the anxiety to get a better price for his honey.

If it were really desired, I could show by railroad statistics that but a small portion of our honey finds its way into the warehouses of the wholesale firms of Los Angeles or even San Francisco.

That our local dealers send out the pure article can be attested to by the A. I. Root Co.; for I know (if they do not) that their carload of California honey was shipped by a local dealer of Riverside.

That there is plenty of work for the Bee-keepers' Union to do along this line is not disputed. I believe the present stagnation of our honey markets is, in a certain measure, due to this evil. The hush-up policy will only aggravate the evil by giving the criminal the idea that he can pursue his calling without fear of prosecution.

We have an example before us in the manufacture of oleomargarine butter. Suppose the farmer had adopted the hush-up plan as a remedy for the evil, how much pure butter do you suppose we should find in the markets? Any one can easily answer the question. But the farmers are a strong factor in this country; and when they acted as a unit against the adulteration of their product, legislators were obsequious to their will, and strong laws protect the dairy interests. The bee-keeping interests are weak beside the dairy interests, but need the strong arm of the law quite as much; and that it may be applied with thoroughness and wisdom in behalf of our beloved pursuit is the desire of the Rambler.

Bloomington, Cal., Oct. 12.

[We can testify to the fact, as Rambler says (and he ought to know, for he has traveled all over the State), that a very large portion of the California honey is sent from the producer in that State direct to the buyer in the East. We have several times bought from producers in that way ourselves. Much of the honey is marketed by the bee-keepers' associations. Of

course, the honey may be adulterated after it gets here; but we "wise men of the East" surely ought to be able to keep it pure while it is here.

Rambler's fourth paragraph is somewhat of a clincher, and I regret that it shows that Mr. Dayton, who usually writes very carefully and cautiously, was in this case very indifferent or else careless.—ED.]

A VALUABLE POINT ON THE HIVE QUESTION.

THE IMPORTANCE OF A LARGE HIVE DURING
THE BREEDING SEASON, AND A CON-
TRACTED BROOD-NEST FOR THE
HONEY-FLOW.

By O. O. Poppleton.

I have watched with some interest whatever has been written on the hive question; and will you allow me to call special attention to what is one of the most valuable points brought out as yet? I refer to the last part of your footnote on p. 731. As you know, I use mainly, for extracting purposes, a large single-story hive in which I can add to or take from the bees one or any number of frames at any time. The few thousands of pounds of comb honey I have taken has been mostly done by giving the bees all the combs they could use in the breeding-season; and then when giving sections I take away all combs except the 8 which contain the most brood? In my mind there is no question whatever that this method gives a larger yield of honey than if only an eight-comb hive is used, or even a ten-comb, if the ten are kept in use all the season. My experience leads me to think that more than ten frames during the breeding-season is preferable with most colonies to using only ten. If I were to rig up for comb-honey raising I would use either a sixteen-frame single-story hive or double eight-frame hives, cutting down in either case to the best eight combs when putting on sections. The possible drawback to this method is that it may tend to increase swarming; but such did not seem to be the case in my experience. It would take a careful comparison of the two methods in the same apiary to determine that point.

I think that the reason why Mr. Earl's small hives (p. 731) gave him the largest yields was due to other unnoted reasons than because of a difference in size of hives. I believe it is almost universally admitted that small hives are not so good as large ones for producing *extracted* honey—the interest in this question of small vs. large hives being confined mostly to producers of comb honey.

There are many times in this Southland when extra-large colonies in very early spring are of less value than are medium-sized ones; but Dr. Miller has no cause whatever to worry about that in his locality. The trouble there is the other way.

If Dr. Miller wishes to induce his queens to

occupy the upper stories he can usually succeed by lifting one or more frames of unsealed brood into the upper one, replacing with empty ones. This is an old and (I suppose) a well-known expedient. The first part of this article answers some of the doctor's questions on page 740. Stuart, Fla., Oct. 14.

[I regard this article as well considered, and it is pretty hard to get around some of the facts he presents.—Ed.]

LOCALITY AS BEARING ON THE HIVE QUESTION.

THE IMPORTANCE OF LARGE HIVES: WHERE LARGE HIVES GIVE THE BEST RESULTS.

By F. L. Thompson.

Mr. E. R. Root:—Mr. Getaz has hit the nail on the head, on p. 742. While you recognize locality, on p. 4 of your catalog, I don't think your last paragraph on the subject in that place is limited enough. There is such a thing as giving even the beginner too little strong meat.

What is wanted now is to construct in the minds of bee-keepers an up-to-date map of the United States, in which small-hive and large-hive localities shall emerge in splotches of very strongly contrasting colors. I don't think that "latitude" has any thing to do with it, as is sometimes stated. If alfalfa were extensively raised in Idaho and Montana, it is not probable they would be different from Colorado in suitability for large hives, unless cellar wintering were essential, which is not likely. Nor has temperature so much to do with it as is commonly supposed. The alfalfa region of Colorado has the same average yearly temperature as Southern Michigan and Northern Iowa, although, of course, other climatic conditions are different.

Small hives do well almost anywhere, it is true; but if large hives do considerably better over such large areas as the alfalfa districts, it is a serious matter, not to mention various regions in the South. Very little testimony has appeared in the bee-papers from Colorado; but in conventions, experienced bee-keepers have decided here in no uncertain tones that the large hive is better for this State.

Out of 3200 Dovetailed hives sold last season by one of the Denver supply-houses, the majority were eight-frame. In another supply-house I saw great stacks of eight-frame hives, but not a ten-frame in sight, though I suppose they had them. I noticed one beginner laying in a smoker, sections, etc., and five hives—small ones, of course. This is not as it should be. Who is to blame for it? Partly the supply-dealers, who are not bee-keepers, who infer that whatever is generally sold in the East must be the thing; partly habits of imitation; and in the case of readers of bee-journals and supply-catalogs, and partly the authors of the

sentiment so frequently expressed, that the beginner had better commence with the small hive. The beginning specialist will not remain a beginner, however. If he is in a locality where the experience of others makes it pretty certain that his maturer judgment will show advice of that kind to be a mistake, the folly of taking it or giving it is apparent.

I rather suspect that the owners of those eight-frame L. hives mentioned on page 738 in that locality of long flow are like most of our Colorado bee-keepers—beginners—and that they too depend on supply-dealers who look to the wise men of the East for their inspiration.

Mr. Hand is not quite fair on page 512. If some Colorado men grow restive under the above condition of things, it does not imply that they wish to force the large hive on all the rest of the country. Surely, if Mr. Hand feels justified in protesting against what he thinks we are attempting to do, we are justified in protesting against what we know some Easterners are doing; viz. recommending the hive of their locality to beginners in any locality.

ALFALFA; HOW IT RESEMBLES SWEET CLOVER.

Dr. Miller's Straw on alfalfa (p. 727) is about right if he is comparing alfalfa with *young* sweet clover. The only difference at that stage is, that sweet clover is of a lighter shade of green; has slightly larger leaves and stems, and a more robust appearance generally. But the mature plants are very different. Sweet clover is then twice as high, branches out much more, has a much greater prominence of stems, and is considerably longer, thinner, and has more pointed blossoms, than alfalfa. Aside from the blossoms, and except when it gets quite old, alfalfa presents the general appearance of young sweet clover.

Dr. Miller might add to another Straw on the next page, that alfalfa is mentioned in some of the Greek authors as "Persian grass." Perhaps Persia is where it originally came from. It is rather curious that Aristotle says it diminishes the flow of milk, which is just the opposite of what our dairymen think, who prize it for its milk-producing qualities when it is cut before it blossoms (alas for the bee-keeper!). Aristophanes mentions it as horse-feed, but it is not regarded here as so good for that purpose as other kinds of hay. When used to feed horses it is better when fully mature; and the first crop is better than succeeding ones, the reverse being true for cows. It is raised here so extensively only as a matter of necessity, on account of its drouth-resisting qualities. On account of its abundance it is so cheap that clover would pay better if one were sure of the second crop.

THE HONEY THAT POISONED XENOPHON'S SOLDIERS IN ANCIENT TIMES.

Speaking of classical matters, I believe Prof. Cook denies that the honey which Xenophon's army ate was poisonous, and thinks any honey

would ausce the same effects in those not accustomed to it. This is of some interest to us, on account of the alleged poisonous qualities of yellow-jessamine and mountain-laurel honey in the South. If honey from one plant is proved to be poisonous, it is not impossible that honey from another plant could be. I have been looking the matter up, and don't see how he reaches his conclusions. Not to speak of the testimony of several modern travelers, given with some detail in Vollbrecht's *Anabasis*, Xenophon's own words are rather unmistakable. Besides the sickening effects, which any honey might produce, those who had eaten a little seemed to be heavily intoxicated; and those who had eaten much lost their senses and did not regain them until twenty-four hours after, "recovering on the third or fourth day as if from the effects of a drug." One does not become delirious from indigestion merely. The honey now produced in that region is known by a term signifying "mad honey."

Arvada, Col., Oct. 9.

[I wrote the paragraph in the catalog, recommending the eight-frame hive, to which you refer, and at that time that size of hive seemed to be accepted as the nearest right for the average bee-keeper, and for the average locality; but now it looks as if it would not be safe to make any recommendation; and we have therefore decided that, for another year, we will request bee-keepers to state what size of hive they desire. Of course, we shall send out the smallest, or eight-frame, size, when no size is specified. I am quite well satisfied, however, that, in regions where there are long honey-flows, and the flows are copious, too, that the large hives are best. I am satisfied that the eight-frame size has given remarkable results in the East; but I am not so satisfied that the results would not have been better had the ten-frame size been used instead.

It would indeed be a good idea to get out a map showing where the regions where ten-frames, or hives with that capacity, were the most used; where the eight frame has the preference; where the two sizes seem to be mixed up indiscriminately according to the fancy and taste of the bee-keeper; and I propose, if it is possible, to have one made. But to do so I shall need reports from bee-keepers all over the country, who will voluntarily let me know, on a postal, what kinds of hives are used. But they must be sure to specify what part of the State they live in.

After the map is prepared we will have it photo-engraved, and submitted to our readers, after which, revised and re-revised, if necessary, to make it correspond with existing conditions. This will settle the hive question in a more practical way than any other I know of, and will, perhaps, be a fit ending to the discussion that has been long drawn out.—ED.]

WHAT IS A LARGE COLONY?

By J. E. Hand.

Mr. Root:—I notice on page 733 that Dr. Miller calls me up to explain what constitutes too large a colony. Why, too many bees, of course, doctor. Perhaps you will understand better

what that means after you get your queens to fill those two eight-frame brood-chambers with eggs, but yours will be too large just after the close of the honey-harvest.

The next question, why too large a colony in early spring does not do as well at harvest time as one that arrives at the proper strength for work in the sections at the beginning of harvest, is a little harder to answer; but such has been my experience. Many times I have watched with great expectations an extra-large colony in early spring, which just fairly roared with bees long before the others had made much of a show, and perhaps swarmed two or three weeks before the white-clover harvest; and in every instance I have been disappointed by seeing such colonies far outstripped in honey-storing by average colonies that arrived at the proper strength for work at the right time. I can see that location might make a great difference in this matter, as it does in almost every thing connected with the business. In my location bees were very often destitute of honey at the beginning of the white-clover harvest.

I distinctly remember the best season I ever experienced, when I had to feed my bees the 10th of June to keep them from uncapping their brood, and in two or three days they commenced work on white clover, and averaged 110 lbs. per colony.

I have had some experience with queens laying in upper stories when working for extracted honey, and they became such a nuisance that I was obliged to use queen-excluders on all such hives, or have the combs that should be filled with honey crammed with brood that cost a great many pounds of honey to produce, and which would not hatch in time to gather an ounce of honey; and at the close of the season the bees would nearly always be in the upper story, with the lower one entirely empty.

If I were going to use two eight-frame brood-chambers I should want a queen in each with a double queen-excluder between, and, at the beginning of the harvest, remove one to a new stand, and place the surplus-receptacles on the hive which remains on the old stand. This would suit my location much better.

Wakeman, O., Oct. 14.

SIZE OF HIVES.

THE STANDARD LANGSTROTH NEAREST RIGHT SIZE; WEIGHT OF HIVE NOT TO BE CONSIDERED.

By J. S. Hartzell.

It has not been made clear as to what is the better hive for the general bee-keeper. Very many want a hive similar to the cluster of a swarm. Is it not a fact that a swarm adapts itself to the cavity or receptacle, in which placed, be it of what shape it may? Now, bee-keeping friends, with all due respect for all who

have written and may write on the subject of hives (and I only hope more may be said), don't you think that father Langstroth, in adopting a size of frame, and ten frames per hive, came as near filling the wants of the general bee-keeper as it is likely or possible to do?

I notice that many find fault with the weight of the larger hives when filled; but now the season of 1895 is closed, how about stores? I presume many—yes, very many—of the bee-keepers are only wishing for weight; and if they had heavy and abundant stores, no complaint as to weight would be heard. I can truthfully say that I should prefer hiring help to handle hives heavily stored than to be able to handle the lighter weights lone-handed.

Addison, Pa., Sept. 20.

[Is it not indeed remarkable—yes, very remarkable—that Mr. Langstroth, without the aid of previous literature to guide him, should, almost alone, be able to settle these problems so nearly right every time? The mere fact that the ten-frame hive is coming to be recognized after all, as the standard; that the Langstroth hive *as a whole* has been a standard all these years—is a proof of how far-seeing Mr. Langstroth was in his early years. For example, again, bee-spaces, about which we hear so much nowadays, were first provided for in the construction of the hive by Langstroth. Thick and wide top-bars will be found in old hives after Langstroth away back in the early sixties. Honey-boards, with a provision for a bee-space on both sides, were a part of the Langstroth system. Verily, he seems to have marked out a pathway for the whole of us.—ED.]

QUEENS WORKING IN ADDED STORY.

NOT "SHARP STICKS" BUT CLUBS FOR DR. MILLER; THE EXTRA-LIFTING QUESTION, ETC.

By C. A. Hatch.

I had thought that I had said all there was for me to say on the 8 and 10 frame question; but Dr. Miller has aimed a club straight at me, and if I do not "cheep" he will think he has hit me hard or downed me entirely; and to have him think that would be too humiliating. But here, after judging from Oct. 1st GLEANINGS, all there is for the ten-framers to do to give Dr. M. good hard knocks on the hive question is to turn one of his own household against him. Go for him, Miss Emma; you will fetch him yet. He will find out, before he is 40 years older, that a queen will not climb up and down over an inch of wood and half an inch of space to lay eggs on both sides of it, as readily as she will step from one comb to another. And hit him again on the lifting-off of that top hive every time he has to examine the colony, and perhaps he will see that the extra work is all on the side of the small hive; and may be you will convince yourself that all this extra work during the honey season will compensate for the heaviness of the hive in moving time.

But, to answer Dr. M.'s question. "What kind of frames did you use when the queen would not go back and forth from top to bottom hive?" The common three-cornered top-bar, $\frac{3}{8}$ inch each way, bottom-bar $\frac{3}{8} \times \frac{3}{8}$ inch, with about $\frac{1}{2}$ inch space between them when tiered up, with but few burr-combs. It is plain that the reason your queen went back and forth so readily was that the space between, being filled with comb, it was to all intents and purposes one comb.

In the case of those obstinate bees and *very* obstinate queens that refused to lay in the top at all, are you sure the queen was at fault? To me it only shows the good hard sense of the bees themselves in refusing to fix up the combs for eggs when nature said, "*There is the place for the surplus honey.*" Did you examine the combs to see if the bees had fixed them ready for eggs? Were they cut down to the right length, and cleaned and polished? If not, how do you know but you were killing that poor innocent queen for something she was entirely guiltless of? for you must have observed that, unless a queen has a cell all clean and polished to her liking, she will not put an egg in it. And to make sure that this is so, she examines each and every cell before depositing her egg in it.

As to that extra lifting, Dr. M., that is keeping you out of the camp of the ten-framers, there is only one time that the two extra frames make much difference, and that is when carrying into the cellar. Come right over, doctor; we will welcome you with open arms, and you will find that the ten-framers' hearts are large, like their hives. If those eight-frame hives you have on hand stand in the way, put some lath across the bottom, and use them for boxes to store vegetables in. Your assistant, Miss Wilson, has put the case quite strong indeed, and shows she is really a convert, but holds back a little for consistency's sake. Even the Roots have had to acknowledge some things they would not at the start, and we *may* convert them yet.

If all men had the candor and honesty of B. Taylor, to acknowledge a hive a failure after making it a hobby for years, we might sooner get at the truth of things; but I am afraid we are all more or less warped by our prejudices.

That idea of yours, Dr. M., to have combs filled in the fall, ready for the bee-feeding in spring, is a good one; but let the bees put it right in their own hives, and then you have got it all "solid," and no trouble about getting them to take honey from a feeder in the spring either—another argument for two more frames in the hive—see?

Send on your clubs, doctor; we will throw them back, any way.

Ithaca, Wis., Oct. 8.

[Friend Hatch was the man who started this large and small hive discussion a little over a

year ago. At that time the most of us thought he might as well keep still, as every one would be "agin him" in experience. And, indeed, we tried to club him down; but so many ten-frame users came to his rescue, and more are coming, that it looks quite probable that the single-story eight-frame capacity for brood for many localities is too small to get the best results in honey. Indeed, it begins to appear pretty forcibly that the majority of extensive bee-keepers are in favor of a brood-nest of a capacity larger than the eight-frame Langstroth of single story for nearly all localities. But here is the situation here at Medina: Is not even the ten-frame too small? and would it not be better to have two eight-frame stories, one above the other, as one brood-nest? O. O. Poppleton, who leads off the discussion in this issue, and he is one whose opinions we value much, would have 16 frames. We get brood in both our stories easy enough, and it seems others do, although our friend who won't be clubbed down does not.—ED.]

JAKE SMITH'S LETTER.

Mr. A. Gleanings. Dear Sir:—Zed reads a good eel in your paper. One day he had been a readin, and he speaks up and says he. "I believe that man has the right of it. Here's a man on page 164 who says a big hive is warmer than a little one. Now a body wouldn't think that till he comes to explain it."

"Zed," says I, "it's pretty hard to explain how it's easier to keep a big room warm than a little one."

"Well, it's easy enough after you hear how he explains it," says Zed. Then he read from page 164 of your paper: "I believe the bees form what is known as an inside hive. By this is meant that, around the margins of brood, the bees arrange themselves in such solid lines between the combs as to prevent a circulation of air from within or without the cluster, for the purpose of keeping a high temperature there while they allow the rest of the hive to arrange its own temperature; consequently, in cold weather the walls are often coated with frost; and in southern California, where frosts seldom come, we find the walls and unoccupied combs dripping with moisture. From this it would seem that the ten-frame hive is actually warmer than the eight, as the cluster of bees and brood would be able to locate farther from the outside walls. Even if the cluster was warm enough and near enough to the walls to dispel the moisture or frost, it would require warmth to do it, and such warmth would disappear in the operation, and could not aid in brood-rearing, as where there is no frost to be dispelled." Then he read in other places: "The more frames in the outside hive, the longer beam would there be re-

quired between the outside and inside cellar walls. . . . The more dead air, the more protection." "Now," says Zed, "don't you understand how it is?"

"That's too high-larnt for me," says I; "I don't understand a word of it; but it seems to me it had ought to take more to keep a big room warm than a little one."

A few days afterward Jim Short come around, and Zed brought up about a big hive bein warmer than a little one, and read all about it in your paper. Jim said he didn't know about it."

"Why, can't you see," says Zed, "that when the bees are jam up again a wall it takes heat from them to warm that wall; but dead air will keep them warm; and 'the more dead air the more protection?'"

"You think, then," says Jim, "that it's warmer if the bees are four inches from the wall than if they're only two."

"Now you've got the idee," says Zed.

"And 8 inches would be still better than 4."

"Certain," says Zed.

"And 16 better still."

"Ye— I suppose so," says Zed.

"And if it was ten foot to the walls all around," says Jim, "then I s'pose it would git so hot the bees could hardly stay in the hive in winter."

Zed didn't say a word—jest looked.

"Zed," says Jim, "I'm afeered there's a screw loose somewhere."

By that time I begun to study over it, and, says I, "I s'pose the bees know pirty well what's warm and what's cold. When it gits too hot in a hive they git out where it's cooler; and when it freezes they huddle up together to keep warm. Now don't you s'pose the bees



would hunt out the warmest place in the hive when you hive them?"

Zed said of course they would.

"And do they always cluster right in the middle of the hive as far from the walls as they can git?"

Zed allowed they didn't.

"No," says I, "when you hive a swarm in an empty hive, the first thing it does is to cluster up as tight as it can git, right up again the walls."

"Yes," says Zed, "of course they do; but that's because it's hot weather, and they want to git where it's as cool as they can."

Then you ought to heard Jim laugh. "Zed's got the start of you," says he.

"Do you mind," says I, "that little swarm we hived under the pear-tree, and it turned nearly freezin' that night? How was it when we turned up the hive to look at it the next mornin'?"

Zed's pirty fair on an argument; I'll say that, if he is my boy; and he owned up rightstraight that the swarm was shrunk up to almost nothin' in one corner of the hive.

Just then a knock came at the door, and a wild-eyed female individual entered with a handbill in her hand which she held aloft, and, says she, in exsighted axsents, "Is Rambler here? I'm his slighted Eugenia!"

Then she shook the handbill, and, says she, "That's what comes of havin' foreign women so plenty. He deserted his dear Eugenia because he wanted a woman of royal blood! Nothing but a queen would do him! And to think that it's come to that, that one of them would offer herself for three dollars!"

Jim whispered to me, and, says he, "She's off in her upper story."

"May be she is," says I; "but Rambler has much to answer for."

JAKE SMITH.



WHERE SHALL WE WINTER BEES?

Question.—I have several colonies of bees for the first time in my life, and wish to know where and how it will be best to winter them. Shall I put them in a cellar, wrap them up, or let them be as they are for winter?

Answer.—There is probably no better place to winter bees than in a good dry cellar; and if the questioner has such a cellar I would advise him to set his bees in it for wintering. While this is not absolutely necessary for safe wintering, and not as necessary in our southern as in our more northern localities, yet there will be a great saving of honey to the apiarist, as well as better chances of successful wintering, even as far south as all but the most southern tier of States. If the cellar of the questioner has a

variable temperature it will not be as good for the bees as would one in which the temperature could be kept as nearly at 45° as possible; yet if the temperature does not go above 50°, nor go lower than 35, it will winter bees much better than to leave them on the summer stand unprotected. If the cellar is of more variable temperature than this, the bees would be doubtless better off out of doors. To properly fix the hives for wintering in the cellar they should be carefully carried in on some morning when it is a little cooler outside than the temperature which is required for the bees to fly, and never when the hives are frozen down to the bottom-boards or to the ground, if this can possibly be helped. When the hives are thus frozen down, the jar and confusion which comes from prying them loose results in great irritation to the bees, and causes them to consume so much honey that it often leads to unsuccessful wintering afterward. After getting them to the cellar the hives should be set on a bench a foot or more off the cellar bottom, and the hives raised by some means at least two inches off the bottom-board or bench. Failing to do this the hives will not be properly ventilated, and the result will be that the bees may become uneasy from lack of proper ventilation, which will cause them to consume more stores than is necessary to their existence, thereby needlessly using up the honey, and often leading to disease and death. If it is not convenient to thus place them, the hives may be turned bottom side up if the frames are fast or box hives are used, and a light thin fabric of some cotton goods thrown over the hive; still, the first is much to be preferred. I also believe that the cellar should be dark, or that part of it in which the bees are wintered. Some claim that bees will winter as well in a light cellar as in a dark one, which may possibly be so if all of the conditions for successful wintering are present; but as such conditions are usually not all present in many (if any) cellars, it is always best to be on the safe side; hence the advice to have the cellar dark.

If the cellar is lacking in many of the qualities which go to make a good cellar for wintering bees, then it may be best not to try it at all, in which case we must try the next best plan, and one which is quite well suited to all latitudes south of 44°—that is, wintering on the summer stand packed with chaff, fine hay, or straw. While a chaff hive is the preferable thing, yet it is not supposable that all may have such hives, so we must fix the bees the best we can according to our environments. If you do not have chaff hives, go to the store and procure dry-goods boxes of a suitable size, or otherwise make them, in which the hives can be set, and leave room all around for the packing. A space of about four inches is the right amount to leave, for experience has proven

that this is better than a larger or smaller amount. The bottom-board should be raised that distance above the bottom of the box, and, after having packed under it, it should be secured there, and so as to touch the front side of the box also, as the bees must pass over this to get outside of the box. Half an inch above the bottom-board a thinner board should be secured in the same way to both the hive and box, immediately above the entrance to the hive, so as to keep the packing-material from obstructing the passage of the bees, for this is now to become the entrance to the hive.

Having this fixed, and the hive thoroughly secured to its place, we now put in the packing, pressing it in tightly, so that as even a temperature as possible can be maintained inside of the hive, packing the material in as nearly alike on all sides as possible. When the top of the hive is reached, the honey-board, if one is used, should be removed, and two or three thicknesses of cotton cloth spread over the top to keep the packing from rattling down into the hive, and also that, in thus providing for ventilation, a direct draft shall not be allowed through the hive.

Having all fixed as above, fill in the packing to the depth of four inches all over the top of the other packing, as well as over the hive, keeping it as evenly distributed as possible, but allowing it to be more loose and open than at the sides. The box should be tall enough so as to come a few inches above the packing, so that the cover, which is now to be put on, shall not touch it. This last is very important; for where the packing touches the cover to the box it will absorb the moisture which condenses on the cover, to such an extent that all will become wet and moldy long before spring.

No matter whether it is chaff hives or boxes packed as above, there should always be a few inches space above the chaff or packing, so that the moisture arising from the bees may have a chance to pass off to the outside air with as little condensation as possible. Having your bees thus fixed, or in a good cellar, they will winter much better than if left to take their chances in unprotected hives.



LYSOL A SUCCESS AS A CURE FOR FOUL BROOD.

Report from here is poor. Basswood did great for ten days, but no honey since—not enough to keep up brood-rearing. Well, we have no foul brood now. One colony has some dead brood, killed by feeding lysol. I used a hive that had foul brood last season, and fed two feeds too close together, so that the young

larvæ got two doses, and that will fix them sure. Lysol will cure foul brood here in Michigan. I have treated 7 colonies for another party, and they are now all healthy; but it may return next season. More lysol will do the business, so will McEvoy's way of doing. Can't scare me out of another year's growth with it again.

Northville, Mich.

CHAS. BIERY.

[We are very glad to get this report of the effectiveness of lysol as a cure for foul brood. It will be remembered that, after friend Graevenhorst, editor of the *Bienenzeitung* (Germany), suggested to us this new remedy, we procured some of the drug and sent samples of it out for the cost of postage, to those who would try it. As we sent out at the time quite a number of samples, I should like to hear from those who obtained it as to how it worked.—Ed.]

ANOTHER REASON WHY THE HIVE DISCUSSION SHOULD BE CONTINUED.

By all means keep up the hive discussion. It may help other bee-keepers, as it has me, to find just where I am "at" on the hive question. I will try to write you shortly in reference to the standard cubical hive.

Mentone, Ala., Oct. 15.

C. F. PARKER.

MEMORIAL.

While the Southwestern Wisconsin Bee-keepers' Association was in session, Oct. 8, in Platteville, the sad news of the death of Rev. L. L. Langstroth was received. Therefore be it resolved:

That this society deplores the loss of father Langstroth, who died at his post of duty while preaching gospel truths.

That his life has ever been an example of study, thought, and deed.

That by his invention of the most practical movable-frame hive, 1851, and his book, 1852, "The Hive and Honey-bee," Mr. Langstroth laid the foundation of American apiculture.

That a copy of these resolutions be published in *American Bee Journal* and *GLEANINGS IN BEE CULTURE*.

N. FRANCE, Pres.

M. M. RICE, Sec'y.

VALUE OF BEES AS FERTILIZERS, AGAIN.

I would call your attention to the inclosed clip from the *Experiment Station Record*, Vol. VII., No. 1, 1895.

A. T. GOLDSBOROUGH.

Washington, D. C.

[The following is the item referred to, and simply corroborates a mountain of other evidence to the same effect:]

FRUITS, G. COOTE (*Oregon Sta. Bul.* 34, pp. 19-29, pls. 2).—This bulletin comprises notes on various varieties of orchard and small fruits grown at the station, with some general remarks on pollination and fertilization of flowers by bees and otherwise. Tabulated comparative notes are given of the date of blooming and pollen-production for 21 varieties of cherries, 23 of plums, 11 of peaches, 14 of pears, and 22 of apples, the relative abundance of pollen being also designated.

Experiments were made with peach-trees in a forcing-house to determine their power of self-fertilization. Fertilization was done by hand, a brush being used, by spraying with water when the trees

were in full bloom, and by placing a hive of bees in the house. All the fruit was matured on the tree to which the bees were allowed access, while more or less dropped at the stoning period in the case of the trees fertilized by artificial means. A tree protected from the bees, and not otherwise fertilized, set no fruit whatever.

WHAT TO DO WITH HONEY SOURED IN THE COMB.

What would you do with brood-frames filled with sour honey? It soured in the cellar last winter, and the bees died. I have a solar wax-extractor; could I extract it as it is?

Rice Lake, Wis.

LYDIA AMERMAN.

[I would put the honey, comb and all, in the solar wax-extractor. The wax, when melted, will rise to the top, when the honey can be drawn off. If it is not then sweetened by the heat, throw it away or use it for vinegar. If the combs are good and worth saving, extract the honey and heat it over the stove.—ED.]

A CORRECTION AS TO THE AMOUNT OF HONEY SENT TO THE COLONIAL EXHIBITION IN 1886.

It is to be regretted that it is so difficult to catch up with and down an untruth, once it "gets a going." There is no doubt that Mr. W. S. Hughes, the writer of that biographical sketch of Mr. M. B. Holmes, intended to give correct figures when he said, "Ontario sent about 40 tons of honey to the Colonial and Indian Exhibition in 1886;" but, in fact, we sent only about 20 Canadian tons; but that would not make 20 British tons by any means, which makes the untruth all the more to be regretted.

I very well remember the nice large exhibit of honey sent to that exhibition by our enterprising brother Holmes. It gives me pleasure even to this day to go over in my mind the noble manner in which Bros. Holmes and J. K. Darling, living as they do away off in the east end of the province, responded to the call for honey to send to that exhibition. All their correspondence was prompt, courteous, and business-like, and their promises carefully kept. It is a pleasure to do business with such men.

Belmont, Ont., Oct. 21.

S. T. PETTIT.

STICKY FLY-PAPER IN THE TREATMENT OF FOUL BROOD; HOW EASILY RECOGNIZED FROM THE DESCRIPTION GIVEN IN THE A B C OF BEE CULTURE.

I have been working in foul brood, and I went to the A B C for treatment. I had eight colonies badly affected, and I think the disease well named. I would say to those who have never had it, you need not guess at whether you have it or not. You can tell as soon as you see or smell it, to a certainty, from the description in the A B C. I used to think every bit of chilled brood I saw was foul brood sure, and was always looking for it as if it took fine work to detect its presence. I thought I could smell it for a week after I got it burnt. I took the best to try my hand at curing; the others, I burned (kept the hives and immersed in boiling water, as directed in the A B C).

As there is some doubt expressed in the book as to our being able to get all the bees, I will tell you how we did. We brimstoned them after night, and let the hive stay on the stand over the next day. Having the entrance corked tightly, we took a sheet of tanglefoot fly-paper and cut a hole in it over the corked entrance. This caught every straggler. After scalding the hives I painted them inside with 5 per cent dilute carbolic acid.

I started up with 5 Hoffman frames to the hive; and after the bees were put in on the foundation I let them stay confined 48 hours, then fed, and let out next day after feeding at sundown. We boiled the honey to feed them inside at night. They seem to be coming up, as the A B C says, with June prosperity, notwithstanding the comment that it doesn't work with some. I neglected to say that we used fly-paper at the entrances of those confined, and think it works finely to catch the stragglers anywhere.

Will you kindly tell me whether it would be best to burn the sections drawn out on those hives this year? I do not want to take any chances that I might avoid, of its return.

Saltsburg, Pa.

G. W. MARTIN.

[The use of sticky fly-paper is a new and excellent suggestion. If we should be so unfortunate as to have at some future time another case we shall try it. The five-per-cent dilution is not strong enough to do any good. Better boil the hives thoroughly. The sections you refer to had best be burned.—ED.]

THE GIANT BAMBOO.

[The following verses were sent us by friend A. F. Brown, of San Mateo, Fla. He says he came across them about the time he read A. I. R.'s description of the bamboo. We do not know where they originated.—ED.]

One night when the hills were drenched with dew,
And moonbeams lay about.
The comical cone of a young bamboo
Came cautiously creeping out.

It tossed its cup upon the ground,
Amazed at the sudden light;
And so pleased was it with the world it found
That it grew six feet that night.

It grew and it grew in the summer breeze;
It grew and it grew, until
It looked right over the camphor-trees
To the further side of the hill.

A Japanese phrase the wood-cutter used
(" Fine tree! " is what we should say),
He chopped it all round, till it fell to the ground;
His oxen then hauled it away.

He made a fine tub from the lowermost round,
A pail from the following one;
A caddy for rice from the very next slice,
And his work was no more than begun.

The next were tall vases and medicine-cases,
With dippers and drink cups galore;
There were platters and bowls, and pickets and poles,
And matting to spread on the floor.

A parasol-frame and an intricate game,
And the ribs to a paper fan;
A sole to his shoe, and a toothpick or two,
He next made—this wonderful man.

A pencil, I think, and a bottle for ink,
And a stem for his miniat ere pipe;
A ring for his hand, and a luncheon stand,
And a tray for the oranges ripe.

A rake then he made, and a small garden spade,
And a trellis to loop up his vine;
A flute which he blew, a tea-strainer too,
And a fiddle to squeak shrill and fine.

It would take me all day, if I were to say
All that wonderful man brought to view;
But a traveler I met says he's sitting there yet,
At work on that single bamboo.



Yes, the bee sings—I confess it—
Sweet as honey—heaven bless it—
Yet he'd be a sweeter singer,
Ef he didn't have no stinger.

RILEY.

A MORE full and complete description of A. I. R.'s visit to Battle Creek will be given in our next issue.

In our next issue, as explained in another column, the symposium on "Wintering" will be made up of articles from the following-named bee-keepers, so far as we have yet heard from them: H. R. Boardman, C. A. Hatch, J. E. Crane, B. Taylor, Friedman Greiner, S. T. Pettit. A number of others will also contribute, but I can not announce their names until I hear from them.

I REGRET that we have not room for all the Reports Encouraging and Discouraging, or even any of them, in fact, for a few numbers to come. Those that came during the month of August and the fore part of September were about equally divided between the two classes; but lately there seem many more of the encouraging sort. These report good fall flows which, in the majority of cases, means no feeding of sugar. Orders for shipping-cases have been coming at a good rate. There has been a good run of buckwheat honey in the East; but there was not much to speak of from goldenrod.

In February, 1885, there was held an international bee-keepers' congress in New Orleans, on the exposition grounds. That was one of the largest and most enthusiastic gatherings of bee-keepers I ever attended, and I know of no meeting of the North American that was larger numerically than that, except the one held at Chicago during the World's Fair. Well, there is to be another bee-keepers' congress, this time at the Atlanta exposition, Dec. 4 and 5. I am informed that "present indications show that it is going to be a large representative gathering of bee-keepers from all parts of the Union." Dr. J. P. H. Brown, of Augusta, Ga., is the prime mover in the matter, and he, doubtless, will supply us with information later, giving us program and further particulars. This congress is in no way connected, as I understand, with the North American or any other association. It is simply an informal gathering of bee-keepers, the same as was witnessed at New Orleans.

COMPOUND NUMBERS FOR HIVES.

E. E. HASTY, in the *Review*, referring to the discussion on the subject of numbering hives,

thinks "a hive needs a *visible* number on it no more than a toad needs a tail, if a strict arrangement by groups is followed." He uses a compound number. The first figure indicates the group and the second the position in the group; thus, 16-9 would mean the ninth hive in the sixteenth group. I have no doubt that friend H. can carry out this plan for himself without the "visible number." But suppose he hired help, and he should direct his man, not very familiar with the arrangement, to 16-9. In the first place he would not know from which end to commence numbering; and, even if he did know, he would have to count up till he got to 16, and then count again. The plan of compound numbers is tiptop, as it helps to locate the hive; but when the expense is merely nominal I would have the visible number by all means.

In this connection I may remark that H. R. Boardman, of East Townsend, O., letters the rows and numbers the hives. For instance, tag B-3 on the hive means second row and third hive. Where hives are carried into a repository, and it is desirable to put them back in the same place in the spring, this arrangement or the compound number of Hasty's is certainly convenient.

FUTURE SYMPOSIUMS FOR GLEANINGS.

It is getting to be quite the fashion to introduce, now and then, symposiums—a number of articles on one subject—in class and especially in trade journals. This was once a prominent and admirable feature in the *Review*; but lately it seems to have been discontinued. In inaugurating something similar in our columns, and with no thought of copying after our excellent cotemporary, my idea has been not so much to focus the opinions of our best writers in one issue as to gather together ideas from bright practical men who write only occasionally. These ideas are to serve as food for thought for *future* issues, and for a better comparison of notes. Such has been somewhat the character of the hive discussion—pollenization of flowers by bees; crimson clover; fixed distances, and others that I will not stop to name. Single-issue symposiums are good so far as they go; but it is seldom that one set of writers in one number can come anywhere near solving a problem, or of giving us *all* the light that can be thrown upon the question. As time goes on, old accepted opinions become obsolete. It has seemed to me that the "Wintering Question," once an old chestnut, should be at least looked over; and the best light we have should be thrown upon it; i. e., to use a little modern parlance that expresses the idea better than any thing else, "see where we are at." "What! that stale old subject?" you ask. Yes, but I plan to have it so presented that it shall be fresh.

I have asked a number of our prominent and

successful bee-men to give briefly their present method of wintering, and then in the same article what they have learned in the last three or four years that has been helpful along this line. My idea is, to learn how nearly the successful ones follow the same or essentially the same methods. If these methods are generally the same it will be proof that they are nearly the correct ones; and then I am sure that the last few years have thrown light on problems that a few years ago were totally unsolved. The question will then be open for others to discuss for one or two numbers.

In our issue for Dec. 1st, or perhaps the one for the 15th, I am planning a symposium on Langstroth; his early career; his inventions, and their relative value; in short, his place in the history of bee-keeping which he, more than any other man in the world, raised to its present standard. A. I. R. and I both feel that the father of American bee-keeping has never been fully appreciated, even by the bee-men of this country. Now that he has but so recently passed from our midst, it is but fitting that a worthy tribute should be extended to his memory. I have already called upon some of the foremost bee-keepers of our land for articles calling attention to some of the features in Mr. L.'s career above pointed out; and, in addition, there will be other papers giving some interesting reminiscences showing the many-sidedness of that man whom, I know, we are all delighted to honor. These, of course, will be supplementary to the article by A. I. R., in last issue.

We shall be printing an extra-large number of copies of the journal for both these issues—even larger than what we are now putting out from the press—12,000 copies. Advertisers should not fail to make a note of this.

Later announcements will be given regarding the symposium above mentioned; and, as the year grows on, other special features that will be prominent for the year to come. Now, dear reader, even if times are hard, and even if the bees didn't pay extremely well, can you afford not to remain with us?

HOW TO MAKE SUGAR SYRUP WITHOUT HEAT OR PERCOLATION.

LAST fall I had much to say about percolating syrup by the cold process of feeding sugar and water, half and half, in percolator feeders. It will be remembered that I was very enthusiastic over the plan; for, indeed, it was a great saving in time and bother over the old way of mixing and stirring over the hot stove, to say nothing of the liability to scorch the whole batch and the mussing of wash-boilers, stoves, and utensils in general.

This year, when we began our feeding operations we practiced the percolating plan; but very shortly we discovered an improvement, and I reported the same on page 745, Oct. 1st

issue. At that time I expressed a hope that we might be able to get along without the percolation, and I then referred to the plan practiced by F. A. Salisbury—that of mixing sugar and water, in equal proportions, in an ordinary honey-extractor, and revolving the reel until all the sugar is taken up. From some preliminary tests that I had made I did not think favorably of the plan, and so reported last fall. But more of this anon.

As we did not have enough percolator feeders to go around, our Mr. Spafford, of the apiary, tried mixing, in an ordinary can or barrel, sugar and cold water, giving it an occasional stirring with a stick during the day. If he mixed the sugar and water, and stirred it well, say the first thing in the morning, and stirred it again at noon, and again at night, before leaving, he found the next morning, to his satisfaction, clear and limpid syrup of a consistency of 32 by the ordinary maple-syrup hygrometers. He made several barrels of sugar into syrup by this plan, and in every case the syrup was of first quality, as good as that made by artificial heat, away over to the factory. This I regarded as not only a good hit but a great saving in time, because the food could be prepared in the honey-house, right in the apiary; and then, too, this "made syrup" could be fed in the Miller feeders. These, for late feeding, are ahead of any thing else we know of.

I forgot to say that, later on, instead of making the proportions equal parts, he used three measures of sugar and two of water, and succeeded in getting clear syrup without granules, as when he used equal parts.

THE SALISBURY COLD PROCESS; HOW TO MAKE SUGAR SYRUP, A WHOLE BARRELFUL IN TEN MINUTES.

When Mr. Salisbury, of Syracuse, made us a visit a short time ago I told him of our plan of making syrup, that we were using with success. "But my plan," said he, "is shorter and better yet. It takes only ten minutes to make a big batch."

"But why couldn't I do it then? I tried it, and it didn't work very satisfactorily."

"Well, then you didn't try it right," he insisted. "You let me take one of your extractors to-morrow morning, and I think I can show you how to make the syrup—a whole canful—in ten minutes."

"All right," said I, thinking that I could show him that he couldn't.

Next morning he and Mr. Spafford made one batch, taking sugar and water half and half, in ten minutes; and shortly after, another batch, one-third water and two-thirds sugar, in fifteen minutes; but, as he afterward told me, he turned the reel "good and hard." I was to witness the operation, but something called me away, and the boys didn't wait.

After dinner I went out to the apiary with

Mr. Salisbury, to look at the samples in glass jars that were placed outside in the bright light of the sun so that any undissolved granules could be seen. Sure enough, the half-and-half mixture was as clear as crystal.

"But the other jar looks cloudy," I said.

"The half-and-half jar," he explained, "looked the same way, but, as you see, is now clear. The cloudy appearance is due, not to undissolved particles of sugar, but to air-bubbles. You see, the cloudiness is more dense at the top, showing that the air-bubbles are rising. If they were granules they would be settling, and the clearing would be at the top first, instead of at the bottom.

Even while we stood there it was plainly evident that friend S. was right; for the thicker syrup was also clearing up rapidly, and, shortly after, it was indeed as clear as the other jar.

"That explains," I said, "why I condemned the plan as a failure. I saw that peculiar cloudiness of the syrup after the stirring, and concluded that the sugar was not all dissolved, when in fact it probably was; but tell me," I continued, "just how you made the syrup in ten minutes."

"In the first place we fill the extractor half full of water; and then as we revolve the reel we put in the sugar by the pailful until the can is filled, or nearly so. The object of putting in the sugar *after* the water, is in order to get the granules thoroughly dissolved while the extractor-basket is revolving. If the *sugar* is put in first it will make a sodden mass when the water is added, and require much more stirring."

"You prefer to make the syrup thin—half and half," I said.

"Yes, because I feed early, and then I am sure the bees can thicken it far better than we can."

"But," said I, "we often have to feed late, owing to the uniting of nuclei after the queens are sold in the fall."

"The syrup can be made thicker for late feeding, as we demonstrated this morning, only it may take a little longer."

IS SYRUP MADE BY THE COLD PROCESS MORE LIABLE TO GRANULATE?

"It has been said that the percolated syrup, Mr. Salisbury, is less liable to granulate. Do you think this cold-process feed will be as free from such trouble, or will it be as good as the syrup made over the stove?"

"I never have any trouble with granulation in the combs, and I have used this plan a number of years now. The fact is, when the syrup is made over the stove the heat in itself has a tendency to make the water take up more sugar than it can hold in solution when *cold*."

"That's so," said I; "and when the water is cold in the first place it will take up no more sugar than at any other time."

In corroboration of this I may say that none of the cold-process syrup we fed last fall showed at any time granules of sugar, while we have noticed in times past that syrup prepared by the aid of artificial heat often did show such granules. As Mr. S. says, the heat enabled the water to hold more sugar in solution than it could when cold.

I have thus gone carefully into the details of the conversation, as it explains *how* to make good syrup by the cold process, and how I was misled in thinking that the air-bubbles, by the extractor plan, were granules of sugar in my first tests, when they were only *air-bubbles*.

Of course, making syrup by means of mixing sugar and water together is not entirely new; but the possibility of doing it so expeditiously, and making it as clear and as good as that made by artificial heat, is new, I think. I am aware that there is a general impression that a mixture of cold water and sugar will be more liable to granulate in the combs; but after the reader has thoroughly considered the matter in the light of the paragraphs just given, he will acknowledge it must be even better—at least from a theoretical standpoint. So far as tried by Mr. Salisbury and ourselves, it is just as good in actual practice.

HOW TO USE THE ENTERPRISE MEAT-GRINDER; HOW TO COOK THE MEAT AFTER IT IS GROUND, ETC.

As we have many questions in regard to the meat diet, one of our women-folks was requested to answer in full, and here is what she has to say in regard to the matter:

We had trouble in grinding the meat when a member of our family was dieting a couple of years ago. It seemed impossible to get the meat through more than once, and the plate had to come off every few minutes and be cleaned out. But we have found a way out of the trouble. If you will screw the plate on very tight, take a hammer, and pound it down after you have screwed it as far as you can with your hand, you will have no further trouble. The meat will be forced through in a continuous stream, and you can put it through three times without taking the plate off once to clean it, and you can do it in less time than it took you to do it once.

In regard to broiling the chopped beef, you will probably have to learn somewhat by experience. Make the chopped beef into a loose cake—as loose as you can without having it fall apart in broiling, and lay it on a common wire broiler, and hold it over a gasoline or gas flame, turning it often till it is done. If you do not have access to a gasoline stove, very hot coals will do nearly as well. Have a hot plate near at hand to catch the juice which may run out when the meat is turned. If you have trouble in getting it done through in this way, just sear it over on both sides and turn it on a hot plate and set it over water until it is done. Be sure to cover it if you put it over hot water, so that it will not dry out. Baking it in the oven is not a good way, as it tends to dry out the juices of the meat and make it indigestible.



ON THE WHEEL.

After a busy day there are few things I enjoy more than sitting down at my secretary—yes, it is my secretary—it is a particular one where my agricultural books and papers are all together; and when it is too dark outside I can just sit down there with a nice lamp and take real solid comfort. Well, a few days ago I picked up the *Practical Farmer* for Oct. 5. I always read what Terry writes, whether it is on clover, wheat, or even cattle. Any subject that interests Terry always interests me, for I find some practical hints that are worth money in any kind of business whenever he undertakes to talk to the people. Well, just about the middle of his article I noticed he put in a headline—

BLOOD WILL TELL.

It interested me so much that I am going to copy a part of it right here.

Yes, blood will tell, no matter whether it is in stock or seed. Last spring, Wm. Henry Maule, the great seedsman, sent me two small tubers of a new early potato to test. They weighed less than half a pound, the two together. There was nothing in their appearance to indicate that they were better than any ordinary potatoes one could pick up in any farmer's cellar. I have a good many potatoes sent me to test in this way, and often find that they are no better than old varieties. We had a number on trial this year. To make the trial more complete, I got two tubers of about the same size from an old farmer's stock, and planted them by the side of the others. He said they were Early Rose. I can't say about this, but they are an early kind that he has grown a long time without any change of seed. All these potatoes were cut to one eye, and planted precisely as the rest of our field crop was planted. They were put right in the field, and not on selected ground, but on average. No manuring or fertilizing whatever was done on the land where they grew. Nor did they have any extra tillage. We dropped these pieces in drills made the same as all over the field, and then treated all the field alike till digging-time. I took a fork and threw out the hills planted with Mr. Maule's new early potato, and I never was so surprised in all my life at any results obtained in potato culture. In every hill there were great, large, beautiful potatoes, such as I have never seen since the first year the old Early Rose came around. There were practically no small ones, or medium sized ones—just enormous ones, such as you might perhaps look for under very favorable conditions in a wet season. Now, I am not exaggerating a bit. The first year I grew the Early Rose there were a good many tubers as fine and large as these. I have never seen any early potatoes on my farm since, as one, until I dug these. There were 45 pounds. They resemble the Rose in shape, color, and quality very much. They are quite early, and were ripe entirely before the rains came, so this great growth was made with little chance. The tops were not large. They were not as thrifty and promising as the Freemans, hence my great surprise when I dug them.

The two tubers obtained from a farmer's cellar gave me 15 lbs. of rather small potatoes. They were hardly any that you could call medium, and many small ones. The two lots were each given about three hills less than half a square rod to grow in. The yield per acre of Wm. Henry Maule's potatoes was over 240 bushels. The yield of the others a little over 80. Here was a difference of 160 bushels per acre, due entirely and only to blood. In other words, the vigor and vitality of the new seedling enabled it, under precisely the same conditions, to grow three times as many bushels. Now don't think this is an advertisement of Wm. Henry Maule's potato. He has never written me a word about it. When I planted the tubers I thought in all probability I should never have any occasion to mention it. But there is a great lesson taught by this little ex-

periment. Thousands of farmers are using seed that has so run out that there is no profit in growing the crop. I would not be rash. I am pretty careful myself. But you will make a mistake if you don't change seed occasionally and get the benefit of new blood. In this line of new potatoes we are constantly testing, and quick to change when it will pay. We raised the Early Rose largely for years; but careful tests made us change to Early Beauty of Hebron, Snowflake, Monroe Seedling, etc., as these newer varieties came out. Do you know the night after I dug those 45 pounds of new potatoes I hardly slept at all? My potato blood was so stirred up I couldn't cool down.

Well, the above little story so stirred up my "potato blood" that I could hardly wait till the next morning. Do you know why? Because I determined to make Terry a visit on purpose to see that 45 lbs. of potatoes. Furthermore, I decided it was the potato I wanted for some experiments I am getting ready for in the way of growing early potatoes under glass. I could have ridden the whole distance on the wheel; but it takes almost too much time, and just now we are very busy here at the Home of the Honey-bees. I accordingly took the first train for Akron, 20 miles away. Then I asked if I could put my wheel on the electric cars.

"Not unless you pay for the wheel also."

"All right. But how much must I pay for the wheel?"

"Ten cents for yourself, and the same for the wheel as far as the power-house, where our runs ends."

"All right, and many thanks. Why, if you will only carry our wheels along with us for the small sum of 10 cts. additional, we will patronize you often, and the wheel business and the electric-car business will go right on lovingly together."

These electric cars are warmed by the same subtle fluid that propels them. Under every seat in the car there is a simple coil of wire. It looks as if it might be galvanized iron. The coil is open so the air can circulate all around. The wire is of such a size that the amount of current sent through it makes it hot; and this diffuses the most pleasant and agreeable heat you can imagine all through the car on a frosty October morning.

At the power-house the line from Silver Lake to Cleveland starts out. I went into the office and tried to make arrangements with them to carry my wheel with me, but they absolutely refused. They said I could have the wheel sent on a freight-car that runs along later. I explained that I should have to have the wheel as soon as I stepped off the car. But it was of no avail. Why will great corporations be so stupid? Is a wheelman going to patronize an electric road and then sit down and wait for his wheel to come up after him, waiting longer than to have ridden the whole distance with the wheel? The consequence was, I rode eight miles to get to Terry's, and then a visit of only fifteen or twenty minutes; for to reach home by night I must get back to the power-house at just such a time. But I saw that new early potato. They were down in a dark cellar, in a bushel basket, with a big tub turned over them so as to be sure nobody got those precious tubers for dinner, by mistake. I wanted one of those potatoes very badly. I would have given a dollar for just a little one; but I knew beforehand that friend Terry would neither sell nor give away even the smallest potato without Maule's consent. He said that Maule had not told him any thing about the potato at all; neither had he told him what to do with the product. He simply asked him to test them. They had not tried any of them for eating, for they are too valuable. I do not know what some of them might

weigh, but considerably over a pound, I should judge. And this great yield was without any particular show of tops. In fact, the tops were not as large as those of the Freemans right beside.

I was satisfied with my visit, and started back on my wheel with more enthusiasm than when I came. By pretty hard riding I managed to reach the power-house just as the conductor was calling out "all aboard." Next morning I wrote Maule a letter; but 24 hours after, considering the matter, I wrote another, begging for a few of those potatoes at some price. I told him I *must* have them at once. The first letter did not bring more than a promise that, when his new catalog was out, I could have some at catalog prices. My second one, however touched the spot, and the result is, I have actually purchased five barrels of this new potato. They are to be called Maule's Early Thoroughbred potato. The price for the coming season will certainly be a dollar a pound, or perhaps \$1.50. I paid so much for these five barrels I should hardly dare tell anybody about it.

So you see I got the coveted potato I wanted so bad. What shall I do with them? Well, a few will be cut up and started in the greenhouse at once. I am going to see if I can not have some new potatoes ready to plant by planting-time next spring. The rest of them are not for sale, but are to be given to subscribers to GLEANINGS. And this is the way we will do it: Every one of our readers who is now a subscriber to GLEANINGS, who will send us \$1.00 for GLEANINGS one year, not asking for any other premium, shall have one pound, postpaid by mail, of Maule's Early Thoroughbred potato. The potatoes themselves are *worth*, say, a dollar a pound, but they are not for sale at any price. If you do not want to take the trouble to get a subscriber to GLEANINGS, make some of your friends, who you think would be interested in it, a present of it for one year, and we will send you the pound of potatoes.

Perhaps you do not realize how much of a find this new potato is. It is very early — perhaps as early as anything we have. None of our other exceedingly early potatoes are good yielders. This is a tremendous yielder, and the tops are small, so it will be just the thing to grow for early potatoes under glass or under beds covered with cotton sheeting. Below is what Maule himself has to say in regard to quality:

In regard to the quality of Maule's New Early Thoroughbred potato, it is exceptionally fine; it is as good a baker as Brownell's Winner, which heretofore has been considered the best of all for this purpose; and for every other culinary purpose it is simply perfection. You can not recommend it too highly.

WM. HENRY MAULE.

Philadelphia, Pa., Oct. 19.

We have at this date, Oct. 19, received 1 lb. by mail, from Maule. One of these potatoes was cooked, together with some of the Freemans. While the Freeman is perhaps a little more dry and floury, the new potato was pronounced by all the family to be richer and sweeter than even the Freeman. Take it all together, I believe that, with all its other good qualities — earliness and wonderful productiveness — it is the crowning triumph of the present day in potato-growing.

With this fine *early* potato, and the Craig Seedling for a *late* one, we have a pretty nice "span." Don't you think so?

FLORIDA NOTES — CONCLUDED.

I have once before mentioned my visit to the branch experiment station at Fort Myers. This was instituted in order to test Florida products away down below the frost-line. The experiment station proper, however, is at Lake City,

Columbia Co. Here I met with a very cordial reception from Prof. Clute, formerly connected with the Michigan Agricultural College, at Lansing. They have a fine school here, and beautiful grounds; and quite a good deal has been done in the way of testing not only fruits and vegetables, but the various grains that can be profitably grown in the northern limits of the State of Florida. Prof. Clute was enthusiastic about the flat pea, or *Lathyrus silvestris*, which has made such a wonderful growth on their grounds at Lansing, Mich. I believe it was he who first introduced and tried on an extensive scale this plant. The sacaline had also been making a growth of one year on the experiment grounds; but the frost had cut it down; but when I was there it had started out making rank shoots not unlike asparagus. These shoots were several inches in length. Quite a plantation of the flat pea was just up, and was growing enough to show the nitrogen-nodes. I had quite a pleasant visit with Prof. Rolfs, the State Chemist. The different professors showed great willingness to drop every thing and show me their work and their plans. This institution is so new in Florida that they have not as yet made a success of many of the experiments, as we have here further north, where experiment stations are an older idea. My stay was so brief that I did not have time to go about much in the country.

Around Lake City, as in other parts of Florida, we find many of those strange sink-holes that have interested me so much from time to time. Gear's Sink, near by, is filled with beautiful clear water, indicating that these artesian wells and lakes have at least some connection with this sinking-down of the ground. Naturally, Florida has not very much to offer in the way of waterfalls; but Falling Creek, in the vicinity, is certainly as handsome and picturesque as some of the falls further north. A beautiful clear pure water that characterizes almost every part of Florida is one of the pleasant things about it. In fact, I can not remember of having seen any muddy water anywhere; and, I might almost say, for that matter, no mud anywhere. Another sink-hole, called Falling Creek Sink, interested me. The ground has gone down, carrying with it trees, logs, brush, etc., making it look as if the bottom indeed had commenced to drop out of every thing. The turpentine industry flourishes to a greater or less extent all through this region. This has been described before.

A few miles out of Jacksonville, toward the west, one is astonished at seeing a considerable town of very hastily built cabins, now entirely deserted. What could it mean? My curiosity was finally satisfied by some of the passengers telling me that it was a camp started at the time the yellow fever was raging, people rushing for the country, and getting along as best they could until the epidemic had passed by. And now it makes one feel a little sad to see quite a good-sized town so still, silent, and desolate. Probably there was nothing in the location to induce people to stay, other than the fact that it was a safe distance from the contagion of the terrible epidemic a few years ago.

During the middle of March I started back for my northern home. There are many pleasant things about Florida; but I confess that, as I got on further north, it seemed exceedingly refreshing to see *large areas* of cultivated fields. In Florida, farming and gardening of all sorts is mostly done in the favorable places here and there. The greater part of almost every locality is still wild and uncared-for.

Some years ago an old song was quite popular, called "The Girl I Left behind Me." I be-

lieve it met with more favor with the young or middle-aged; and it might seem out of place for a man of my age to be letting his thoughts run a good deal in the direction of "the girl I left behind me." Yes, every mile I passed reminded me that I was so much nearer, not only the girl I left behind me, but the other girls and boys flocking around her, to say nothing of the grandchildren; and my heart overflowed at the thought of meeting them all again after an absence of two months. I fell to musing a good deal, and I don't think I was as talkative as usual; but in coming through Georgia I overheard some of the young farmers talking about planting for watermelons. Said I:

"Why, do you dare plant watermelons as early as this, especially when you are having such severe frosts?"

"Why, stranger, some of us have found that it pays to plant very early. If the weather should swing around favorable, and these early-planted seeds grow, we are that much ahead. But we do not place very much dependence on this very early planting, however. Most of the large melon-growers commence very early, and then put some more seeds in the same hill, say every week, for several weeks. If the first and even second planting is killed, then the third will probably come on all right. The seed costs but little; and at this season of the year, when we have not very much to do, the time costs but little, as the hills are a good way apart; and in this way we make a sure thing of reaping the advantage of an extra-early spring if we should have one."

Now, friends, is there not a big idea here?

As I go over that pleasant visit of two months, and think of the friends I found there, I feel a great longing to go over the same ground once more. There were several points that I did not explore to my full satisfaction, because of poor health. Providence permitting, I may at some future time give you some further glimpses of that land of flowers and sunshine. Let me confess to you that, when I kneel down at night, after the cares of the day are over, I can ask God's blessing on the friends away down in Florida, with a better understanding of the matter than I ever had before.

OUR HOMES.

Jesus then cometh, and taketh bread, and giveth them, and fish likewise.—JOHN 21: 13.

And they gave him a piece of a broiled fish, and of a honey-comb. And he took it, and did eat before them.—LUKE 24: 42, 43.

I have been teaching the "meat cure" pretty vehemently for some time back, dear friends; and after Ernest backed me up on it as he did, I confess I felt somewhat anxious. Suppose I am making a mistake. Suppose the good friends who have been cured, together with myself, have unconsciously got into that state of mind, like the Electropoise patients, and that I am really doing the thing I have so strongly condemned, of *imagining* a good deal. It would indeed be a serious matter. I have prayed earnestly over it. For four years of my early life I was a vegetarian. I have by no means forgotten the arguments I used then. I often think of them; and I have prayed that God would open the way to discover if some *vegetable* product might not be found that would do all lean meat does, and thus avoid, at least in part, the taking of animal life.

After a slight attack of my malarial chills last summer I said to Mrs. Root, "If there is a

doctor on earth who can get me out of these troubles I would willingly give him \$1000;" and I *prayed* over it—not for my sake alone—of course not—but for the sake of suffering humanity whom I try to teach "doctoring without medicine." God has answered that prayer, or, at least, it seems so; and it didn't cost \$1000 either. Of late I have been pleading with the great Father again. I have asked him if it were not possible that we might enjoy the fruits and grains, so luscious and plentiful, at least in moderation, while we secured health.

Little by little as I prayed, my mind began to turn toward the great sanitarium of Battle Creek, Mich.—toward the peculiar people who live there, and who not only live on vegetable diet, but who persist in having their Sunday on Saturday. May be the idea was suggested somewhat by the fact that we had received an order from them for a carload of stuff for boxes to contain their "health crackers," etc. I said again to Mrs. Root, "Dear wife, I would give another \$1000 to know how to keep well, and to teach others, if it could be done, and still allow them to have bread and butter, peaches, baked apples, etc."

As Battle Creek stands at the head in this, I felt it might really be a duty to visit there—a duty I owed to the readers of GLEANINGS, to pay them a visit, that I might not lead them into error. If I am to teach "doctoring without medicine," *surely* I ought to see both sides of every phase of the matter.

At this crisis a letter came that almost seemed to have the finger of Providence in it.

Dear Friend Root:—I have wanted to have you come here and see how our institution is run, ever since I have been here; but I felt as if I was a cracker from the Flatwoods, that I did not care to say too much about it; but in some way your work was mentioned the other day before some of our managers here, and that brought up the subject of A. I. Root. Of course, we are interested in anything that will forward educational work, and lead to better living and happier homes and happier people. The management instructed me to say to you that, if you would come here and visit us, we would furnish the transportation, and consider you our guest while here, and I should be pleased to have you come and see a business that is conducted without a view to money-making, but whose entire profits are to be used either in the betterment of the plant or in charity. We have a family now of about 1200 people, patients, guests, and helpers, and I think it would do you good to come and see some of our meetings. IRVING KECK.

Battle Creek, Mich., Oct. 8, 1895.

I replied at once, accepting with thanks the kind invitation, of course declining to let them pay any of my expenses, for I always want the privilege of speaking through GLEANINGS without bias, unprejudiced by fear or favor. On the 22d of October, as I stepped from the train I was glad to see the friendly face that greeted me so kindly last winter at Bowling Green, Fla. Little did friend K. or myself expect, when we parted away down at Bartow, Fla., to meet so soon, and under such changed circumstances. But I must hasten. At the Battle Creek Sanitarium it is the custom, once a week, for patients and others who may wish to attend, to be instructed by Dr. Kellogg in regard to health questions. Questions are sent up by the audience, and Dr. K. answers. It was my good fortune to be present on just the very evening of one these health-lectures.

Of course, I drank in every word, and I did it with almost as much intense interest as I pursued the subject of bee culture years ago. I am going to try to report the teachings of the evening pretty fully, as I am sure they are of interest and value to all; and may God give me grace to lay aside all my own prejudices (if

I have any), that I may fairly and candidly consider the whole matter. The first question was in regard to the cocoanut as an article for food. As the answer does not particularly concern us just now, we pass it by. The next was: "What will the world use as a substitute for leather if we stop using animals for food?"

I at once surmised that at least *most* present took it for granted that the teacher was opposed in toto to the taking of life in order to furnish food to humanity. The answer was given quite at length, and in it Dr. K. in strong terms advocated his belief. As a surgeon and physician, perhaps Dr. Kellogg has few superiors in the world, and very likely he is ahead of the whole world in devising means for preparing the products of the field for healthful and delicious articles of diet; but I soon decided in my own mind, that, like some other great men, he has an offhand and sometimes even reckless way of making statements. He closed his answer by saying we could dispense with leather very easily, and that common paper, even the slip with the question on, that he held in his hand, could be made stronger and more serviceable than leather by simply immersing it in acids, sulphuric and nitric. I think he said Germany was even now making shoes of paper, much superior to leather. Now, the last may be true; but the former I am sure is a mistake, or a great *exaggeration* at least.

The next question was in regard to a remedy for sour stomach.

The doctor said there were two kinds—one the result of fermentation of the food, the other a surplus of gastric juice. I was a little surprised to hear him at the outset state that the Salisbury diet of lean meat was one method of cure; for pure lean beef, as it contains neither starch nor sugar, could not take on fermentation. At one period, years ago, he himself used the treatment largely—perhaps as many as a thousand patients in all, his own wife being one among the number;* but of late years he had abandoned it. He gave several of the reasons that induced him to give up the treatment. First, a sour stomach never kills anybody. I was surprised at this declaration. If this is true, diseases which we have most of us supposed to result from sour stomach *do* kill, and I confess I hardly see how a patient is going to build up very fast with fermenting substances filling the stomach and bowels. Secondly, an exclusively lean-meat diet, long continued, renders the patient unable to eat and digest anything else. This has been far from my experience and observation. Finally he said a meat-diet makes people "ferocious." This does not accord at all with my last Home Paper. The lady who superintends the juvenile department of our Medina schools has become the very reverse of "ferocious" under the meat diet. For the first few weeks, I grant, the patient feels weak and irritable; but with good digestion that comes in time, and *good blood*, come patience, gentleness, and all the Christian graces.

He said, further, if it were not for the heavy doses of hot water prescribed to rinse off the poison, such quantities of lean meat would prove fatal to the patient. It happens, however, that I was a Salisbury patient on clean pure meat over 20 years ago, before the advantages

of hot water had been discovered. I then drank water as I pleased—drank it cold or not at all, and turned out to be a pretty "tough and lively corpse" at the end of 18 weeks. At that time I was told to eat what I pleased, but to be careful about getting back into the old rut again.

It seems a little sad that two great men, both benefactors to the human race, should disagree in this way.

In regard to the excessive use of sugar, they agree exactly. The same may be said in regard to fats and greasy food; and in the great dining-hall for the helpers I found one table where they had discarded cabbage, turnips, potatoes, etc., as being unwholesome and indigestible. You see in this they agree with Salisbury and Lewis exactly. They also agree in regard to the value of whole-wheat flour, the importance of cooking rice and other grains a long while, say several hours, for the use of those with weak digestion, etc.; but more of this anon.

The last question of the evening was in regard to the use of honey for food. Our readers will recall some of the severe strictures from Dr. Kellogg, that went the rounds of the papers some years ago in regard to the matter of honey as food. Well, the teacher frankly admitted he had changed his mind in regard to honey. Some recent experiments with diabetic patients has revealed the fact that, where a liver is so much diseased that it refuses to eliminate pure cane sugar, it will still fulfill its office on honey—that is, where *sugar* would be almost fatal to a diabetic patient, he can eat good honey almost with impunity. You may recall the fact that I have written of a similar experience of my own, in regard to the use of honey. Will our readers having impaired digestion please try dispensing with sugar, and use good honey instead? If your honey is not first-class, make it so by *sterilizing*, or, in other words, heating, not enough to injure it, but so as to kill even imperceptible fermentation, and make it wholesome.

On my first arrival I inquired about hot water.

"Oh, yes! here it is," said friend Keck, "as hot as you want it, and *distilled water* at that;" and I found most beautiful drinking-fountains, right in the way of convenient access, dispensing pure water, either hot or cold, at any time of day or any season. I can't tell you in this issue all this great institution is doing for the health of humanity; but I am going to tell you of friend Keck's special department. He superintends the factory where the health foods are made. These are almost all the work of Dr. Kellogg's untiring and active zeal in devising means to make sick people well.

Some time ago I asked Dr. Lewis about their gluten biscuit, and he said they would be an excellent thing for patients to take after they are able to take some vegetable food with their meals. Friend Keck gave me a beautiful room after I had been through the cracker-factory, and, after my usual nap, I was served in my room with about the nicest steak I ever found anywhere. As I am now allowed a slice of graham bread with my meat I decided to try a dish of gluten mush instead. Pure gluten is a vegetable food containing neither starch nor sugar; but as I am allowed a little graham bread I chose the 40-per-cent gluten meal. Now, I have long imagined there might be a food product in the world that would be rich and nourishing, easily digestible, and something I could take safely with my meat. As I looked at the gluten mush, it seemed as if it were going to "fill the long-felt want." I tast-

*Pemit me here to call attention to a common and, it would seem, a wide-spread fallacy. Neither Dr. Lewis nor Dr. Salisbury has ever prescribed or recommended raw beef; and yet even Dr. Kellogg more than once uses the expression, "the Salisbury raw-beef diet," or something to that effect. It is true, he once partly corrected it. Now, if he in his treatment gave his patients raw beef, he certainly was not following Salisbury.

ed it. I turned with an exclamation of surprise:

"Why, friend K., this is the most delicious food, I verily do believe, that has ever passed my lips."

I knew, almost without trying, that it would digest perfectly, and it did. In the process of manufacture it is cooked for hours, again and again; and, therefore, when put up ready for market, the addition of a little boiling water makes a nice cooked food almost instantly. The gluten biscuit I found equally palatable, but it is more trouble to masticate them. Gluten may be called the "beefsteak" of the wheat; and when cooking it smells very much like savory meat.

I had quite a talk with Dr. Kellogg in his private office. While he did not say in so many words that gluten foods might entirely take the place of lean meat, he implied that they now succeeded in treating all diseases with a vegetable diet. Be it said to their credit, very few drugs or medicines are used at all. The whole great institution, employing almost every known art and appliance for the cure of disease, come the nearest of anything I ever saw or heard of to a system of really—"doctoring without medicine."

WHEN DOCTORS DISAGREE. WHO SHALL DECIDE?

Dear friends, there is not space in GLEANINGS to discuss the matter of a mixed diet, or one purely vegetable; for great books have already been written on both sides of the subject. May I simply call attention to the fact expressed in the text at the head of this talk? Once or twice our Lord and Savior Jesus Christ saw fit to provide food for his followers. He fed the multitudes, as you are aware, both with loaves and fishes—very likely because that was the common every-day diet of the times. Once more, he at one time provided a little banquet on the shores of the lake for the chosen few. He had first helped them to catch the fish, then he provided for the tired and hungry laborers a little meal, and it was composed as before of bread and fish, both together. At another time, when he was trying to convince them that he was not a spirit, but really flesh and blood, he asked them for food. They brought him some fish and honey, of which he partook. One of the great objections made to a diet of animal food is that it necessitates the taking of animal life; but the Saviour actually helped, by miraculous means, that his disciples might gather in that great draft of fishes. He at least evidently did not consider it sinful to take life in order to provide them with their daily food. Shall we not drop the subject here, letting each one decide for himself where duty lies? and I should say, shall we not thank God for every little bit of progress that is being made in either vegetable or animal diet, in the prevention and cure of disease—especially while this sort of cure was brought about by "doctoring without medicine"?



OUR CROP OF CRAIG SEEDLING POTATOES FOR 1895.

The ground was occupied by potatoes last year; and had it been any other variety than the Craig we should have been afraid of the scab. Let me say here that the crop is mostly

dug and harvested, with scarcely a trace of scab in the whole lot. The potatoes were planted May 10, on something over an acre of ground. As there were different patches here and there, vacated by other crops, it is hard to get at the whole area exactly. The largest piece, however, was, as nearly as we can measure it, $\frac{1}{2}$ of an acre. In consequence of a frosty spring, or some other reason, there was not a full stand. Perhaps the seed was slightly frosted, as it was shipped pretty early in the spring. We cut the potatoes to one eye—mostly large potatoes. The ground was worked up fine, with appropriate harrows before plowing, then plowed and fined up again, making a mellow seed-bed nine or ten inches deep. The ground was in good order, and they came up quite promptly—that is, what came up. So many failed, as I have told you, that, fearing the ground would not be all occupied, I planted Burpee's bush lima beans where hills were missing. I did very foolishly, however, in that; for, before digging-time, the ground was so covered with the Craig potatoes that the beans were literally choked out, and they really amounted to about as much as so many weeds. As the ground had no manure, about the time the tops so nearly covered the ground that it would have been impossible to cultivate much further we mulched all the spaces between the rows with coarse stable manure; and this, together with the great mass of tops, held the moisture so well that, after the first heavy rain, it kept at least *damp* during the whole dry season down under the mulch. About the first of October the greater part of the vines, when stretched up to their full length, came up to my chin—some of them as high as my head. The mass of foliage was tremendous; and so were the *potatoes* tremendous. While picking them up we put some of them into a bushel basket, for photographing. Forty potatoes made a heaping bushel; and from the whole $\frac{1}{2}$ of an acre we gathered a good 250 bushels. This would be at the rate of 400 bushels per acre, and that, too, with so many missing hills that we should have had quite a crop of lima beans if the rank growth of potatoes had not actually crowded them to death before the beans were quite matured. We got some beans on the outside rows—that is about all. The potatoes have now been tested through two of our most trying dry seasons, and they fully sustain their reputation for standing drouth, scab, bugs, and blight, better than any other potato I know of. In fact, it has never shown a particle of blight. By mistake in planting, one row was left after the seed was all gone, and this furrow was pretty well down through the middle of the patch. A new potato that we wished to test was put in here—in fact, several new kinds were put in, right adjoining the Craigs. One after another showed blight more or less before the season was over, and this one long row was all black and dead when not a leaf of the Craig foliage on either side was affected at all. The Craig is in *shape* much like the Rural New-Yorker, and is in every way fully as desirable. We think it of a finer quality as a table potato, and a very much stronger grower, both in foliage and yield.

CRAIG POTATOES AT THE OHIO EXPERIMENT STATION, ETC.

Friend Root:—I was very much interested in your account of your visit to Fenn's, Terry's, and Chamberlain's, in the Oct. 1 GLEANINGS. I thought you would be interested in hearing how the Craig Seedling behaved at the station, and your account brought it to my mind.

□ I can say that we had no variety out of over

one hundred kinds but showed signs of blight by the middle of August; and by Sept. 1st all were dead or practically so. The Craig held out as long as any kind, but had to give up long before any frost. We had an acre or so of different kinds planted about the first of July, and they went before the frost came. Even a few planted the 26th of July did not wait for the frost. Now, just why the blight should be so severe with us here in Wayne Co., and twenty miles north be almost free from it during the latter part of the season, is something I can not explain. The two seasons before this potatoes did extraordinarily well during the latter part of the season.

I undertook quite an experiment in the late planting of potatoes this year; and although it has turned out just as I expected, there have been some facts learned that I think of value. One is, that potatoes that grow until the frost kills them are of more value for seed than those killed by the blight. We found that such seed potatoes throw up a few vigorous stalks, while those that were blighted would have many small slender stalks. The consequence of this is, that the potato from the late-planted seed would give a much larger per cent of large potatoes than would the others. I think I am safe in saying that your Craig Seedlings, that have grown through the summer without blight, are worth much more for seed than ours which have blighted, although we have some very fine Craigs notwithstanding the blight.

Some varieties behaved differently from others in this respect. If you can spare any of the kind that grew until frost came we should be glad to get them, so as to carry on this experiment another year.

I hope you will publish the exact yield, and the amount of ground occupied by that crop of Craig potatoes.

When I was at the Medina fair I had some specimens of the green and yellow soja beans. Several farmers were quite interested in it, and asked where they could get the seed. I told them that perhaps the A. I. Root Co. would keep it in stock; if not, they can get it of T. C. Wood & Co., seedsmen, Richmond, Va.

I believe this bean is a decidedly better forage-plant than many that have been introduced with a great deal of advertising. On the station ground this year one ton of green feed was cut from a tenth of an acre. E. C. GREEN.

Wooster, O., Oct. 7.

[Many thanks, friend G. There was no blight in our Craigs at all. They stood right up till the frost, just as you saw them. So our seed will be entirely from potatoes free from blight. Come to measure the ground with a tape-line, there was not nearly two acres all together. The largest piece, measured accurately, showed $\frac{1}{2}$ of an acre, and from this we got 250 bushels, at the rate of an even 400 bushels per acre, as I have told elsewhere. I shall be glad indeed to furnish the soja beans. If there is more than one variety, tell us exactly the kind that gave you at the rate of ten tons of feed per acre.

My answer to your request to communicate results about the Craig potato is as follows:

I procured of you last spring $\frac{1}{2}$ peck of seed. I cut them into single eyes, and planted on the side of other potatoes. They took a single row of 175 feet. Yesterday I dug them. There was a little more than three bushels; weighed from 19 ounces down; very few small ones; free from blotches and such things. They are the best potatoes I have. I shall plant all I have next year. S. W. SALISBURY.

Independence, Mo., Sept. 30.

I tried thy potato called the Craig; and from thy pound I raised nearly one bushel. The season here was the worst known for years. The blast struck very early; some crops were ruined. The Craig grew very profusely, very large vines; resisted blight the best of any I noticed. In fact, they were green when all other varieties were dead. JACOB ALMY.

South Portsmouth, R. I.

Those Craig potatoes that we purchased of you last spring are very nice. You say the vines stay green till frost comes; but that is not the case with ours. They are all dried up now. But I guess the reason of that is we planted them when we did our early potatoes. We planted half a peck of small Craig potatoes; and when we came to dig them this fall we got four bushels and a half of nice big potatoes; but they were in rich ground. We like them on account of size and good flavor.

We have now 115 colonies of bees. I have ten of my own—all but one in your Dovetailed hive, eight frames.

We have a pretty fair crop of honey this year, but it is all from fall flowers.

Savanna, Ill., Sept. 24. CHAS. D. HANDEL.

The one pound of Craig potatoes I purchased of you yielded $\frac{1}{2}$ bushel, but quite a lot of small ones. They had a very poor chance, a pear-tree shading part of them.

Tidal, Pa., Oct. 19.

SAM'L HEATH.

In the August 15th number of GLEANINGS was something for which I desire to thank you, under the heading of "Sub-irrigation vs. Tomato-rot." I have been trying to introduce a system exactly the same, for the house we have lived in here for a number of years past, but without avail, as the owners are not ready to listen to any thing different from what the plumber has to offer them. They are very well satisfied to run waste water from the sink to a well situated some distance down in the garden, away past every thing growing in the garden—no opportunity for watering unless we pump cold water from the well direct.

East Downington, Pa. FRANK T. HOOPE.



PRICE OF GLASS, AGAIN.

When we made the announcement in last issue, of a large advance in price of window glass, we were not cognizant of the fact that the manufacturers' list price had been changed recently. Since we have the new list to which present discounts apply we find present prices not nearly so high as indicated, though quite a little higher than last spring's prices. In view of this change of base we revise again our price of glass to the following:

Small sizes cut to order will be \$2.50 per box of 50 feet. Strips in stock as follows:

	Price of	Wgt. of
	10 100	100
3x17 $\frac{1}{2}$ for 24 single-tier and 48-lb. cases.....	25 2.00	50 lbs.
3x13 $\frac{1}{2}$ for 12 and 24 lb. 3-row cases.....	20 1.80	45 "
2x9 for 12 lb. 2-row.....	8 60	20 "

CARLOAD OF ALFALFA HONEY.

There is a carload of alfalfa honey on the way to us from Reno, Nev. It is chiefly extracted, of good quality. There is some comb; but as we have orders already waiting for several tons of choice comb honey, we are likely to close this out soon

after the car arrives. We offer the extracted at the same price we have been selling California white-sage and Michigan willow herb, or clover and bass-wood honey. We can furnish any of these in 60-lb. cans, two in a case, at 8c per lb.; two cases or over, 7½c. Write for price on large quantities. Offers of choice comb honey solicited.

HIGHER PRICES FOR WAX.

A brisk foreign demand for wax has stiffened up the price about 2 cts. a pound in the New York market. Until further notice we offer 26 cts. cash, 28 cts. in trade, for average wax delivered here. Selling price in small lots will be 32 cts. per lb. for market wax; 35 cts. for refined. Retail price of comb foundation will be 2 cts. per lb. below the printed table in our catalog. We have for some time been selling at 5 cts. below; but present prices of wax will not warrant further sales at that rate.

THE BIGGLE POULTRY-BOOK.

We have not had time to read it through yet, but we notice this one is not a bit behind the Biggle strawberry-book and the Biggle horse-book, in its wonderful half-tone pictures, to say nothing of the colored plates that are all through it. There is a sort of vein of pleantry running through the Biggle-book pictures that is quite attractive, and the style of narration has this same vein of comicality. We take it for granted that the book is fully up to the times, because books of this kind, sent out by the *Farm Journal*, are usually so. The price is 50 cts. It contains 16 colored plates, 42 handsome engravings, and 61 others illustrating chicken-houses, nests, drinking-vessels, etc. It makes me think of the time when I walked eight miles to a bookstore in order to purchase a book on poultry. It took me a good deal longer to get home than it did to get to the bookstore, because I sat down too often to look at the pictures and to read the wonderful things in regard to my then new hobby; and that book gave me more pleasure, month after month and year after year, than I can well describe, and it gave me also some clean hard cash—the first money I ever earned in any rural industry. I verily believe the Biggle poultry-book is worth 50 cts. just to look at the pictures, even if you do not have time to read it all. You can order it at this office if you prefer. We will send it with GLEANINGS, if you ask for no other premium, for \$1.25.

HOW TO GET WELL AND KEEP WELL.

The above is the title of a book by Mrs. Elma Stuart, of "Merrie England." Permit me to say that, for many years past, I have been purchasing almost every new book as it came out, treating on the subject of health and diet. I do not mean that I have been studying all the medical works and doctor books, but those written in plain English for common people. Well, I have been a good deal disappointed to see that, almost without exception, they advocated vegetable diet, or mainly so. This book by Mrs. Stuart presents a most refreshing and cheerful contrast to the general run. She is a disciple of Salisbury, and, I might say, an ardent disciple; but even the word "ardent" does not express the zeal and happy enthusiasm and pleantry with which she tells of her trials in seeking health. She had money—at least she did in the beginning—to employ the most expensive doctors, and to go to the celebrated health-resorts; but, like the woman in the scripture, she had "suffered many things of many physicians, and had spent all that she had, and was nothing better, but rather grew worse." After gaining strength and robust health by the Salisbury treatment she took up—not medicine (because her whole system is nearer "doctoring without medicine" than any thing else I ever heard of), but she soon commenced treating others, and she has quite a long string of grateful patients to back up her testimony; and in the introduction to the book is a letter by his grace the Duke of Argyll. We find the author's picture in the front of the book, with her own autograph under it, signed, "Yours always in hot water." Her testimony is so much like my own that one might imagine she copied some of it after me were it not for the fact that the first edition of the book was put out in 1889; and in 1891 it had got as far as its fifth edition. The full particulars of the treatment are given so plainly, and in such every-day language, that it seems to me one could hardly make a mistake. In fact, I would recommend this book to all our in-

quiring friends who want to know all about a plan of treatment. And the book is so read: that I think the average person would be likely to read it all through, even though he were entirely well, and not ailing in any respect. The opening text on the title-page is, "If the prophet had bid thee do some great thing, wouldst thou not have done it? how much better, then, when he saith to thee, Wash and be clean?" From beginning to end it is a most vehement injunction to "wash and be clean," in every sense of the word.

The price of the book, postpaid, is \$1.50, and it may be had at this office; or we will club it with GLEANINGS, and furnish the two for \$2.25; or we will mail it to anybody who is already taking GLEANINGS, who will send us \$1.25.

FREE SAMPLES OF THE PREPARED HEALTH FOODS MANUFACTURED AT BATTLE CREEK, MICH., ETC.

I am happy to tell our readers that we are to be furnished with a large box of small sample packages, to be given away to those who order goods of us by freight or express. All you have to do is to say, when you make your order, "Put in some of the free samples of the prepared health foods." Each package contains full and complete directions for cooking. After you have tried them, and would like to purchase these articles in small quantities by the pound, we are going to have it arranged so we shall keep in stock the following staple articles, which will be furnished by us at the same prices at which they are sold in Battle Creek. The following is a list of the prices of the things we propose to keep in stock:

Sanitarium graham crackers, 10 cts. per lb.; wheat crackers, 10 cts.; carbon crackers, 15 cts. These latter are for constipation, and for purifying the stomach and bowels. They are made of carbonized wheat, or wheat partially burned to charcoal. Granola, 20 cts. per lb. This is manufactured from a variety of grains, subjected to continued heat and other processes whereby the starch is partially digested, and prepared for immediate assimilation. Gluten meal, 40 per cent pure gluten, 40 cts. per lb. This is what I have described elsewhere in this issue, and found so delicious when made into a mush. Granose, 20 cts. per lb. This is one of their latest and most luscious foods. It is prepared from wheat. It may be used in soups, with milk or cream, or in numberless combinations with fruit and eggs. It is palatable, crisp, delicious, and a valuable food remedy for constipation. Caramel coffee, 15 cts. per lb. This is a sort of coffee that is simply nutritious and not stimulating. You can give it to the children, or drink it yourself. Wheat-germ grits, 2-lb. package, 10 cts. Whole-wheat wafers, 20 cts. per lb. These are crisp, delicious, toothsome wafers made of whole-wheat flour, shortened with cream. Not a particle of butter, lard, baking-powder, yeast, or soda, is used in making these wafers, or in any of the crackers or biscuits. The first and main idea in their manufacture is health; next, prices as low as may be consistent with quality.

Last, but not least, we have fragments or broken crackers in bulk of all the kinds of crackers that they make, at a uniform price of 8 cts. per lb. These crackers are just as good and just as clean and fresh as any other; but they are not considered quite as nice to put up in packages, therefore they sell them at a low price as above.

Besides all the above, we have the small samples of their health food, put up in little packages, with directions for cooking, to be given away free. If wanted by mail you will have to send 10 cts. for postage; but if you mention them when ordering other goods of us, say by freight or express, we will put in some samples free of expense.

Now, they manufacture ever so many other kinds of biscuit, crackers, etc., as well as prepared foods, and you can get a nice catalog of all by simply making application to the Sanitarium Health Food Co., Battle Creek, Mich.

One special thing to recommend these foods is, that they can be so quickly prepared. The cooking is all done by steam, or by great coke fires, at the factory; and it is done on so large a scale that the cost is comparatively nothing. When you want to prepare them for the table, simply pour on a little boiling water, stir it up, and you have a hot dish of most luscious pudding, mush, toast, or whatever else it may be. Where a woman does her own housework (as is the case in our home), we should